# INSECTS OF MICRONESIA
# Coleoptera: Carabidae Including Cicindelinae

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## INTRODUCTION

This report records 29 genera and 48 species of carabid beetles from Micronesia. It is based on material received mainly from Bishop Museum (BISHOP), with important but less-extensive lots received from the Field Natural History Museum (FM) and the United States National Museum (US). The first sets of specimens have been returned to the museums from which they were received, with appropriate duplicates kept for the Museum of Comparative Zoology (MCZ). Collections made in Micronesia, with names of collectors, are listed in J. L. Gressitt's (1954) Introduction to Insects of Micronesia, pages 193–206. I am very much indebted to Dr. Gressitt and his associates for supplying much of the material on which the present study is based and for aid in many ways, and I am specially indebted to Mrs. Mary Catron for work done with specimens and on the manuscript, and for making the drawings.

Other museums named throughout this paper are listed below with the short form for brevity:

| | |
|---|---|
| Berlin University Zoological Museum | ZMB |
| British Museum | BM |
| Brussels Museum | BRUSSELS |
| California Academy of Sciences | CAS |
| Copenhagen University Museum | COPENHAGEN |
| Fabricius Collection, Kiel Museum | Fabricius, KIEL |
| Genoa Civic Museum | GENOA |
| Hope Museum, Oxford | HOPE |
| Hunter Collection, Glasgow Museum | Hunter, GLASGOW |
| Kiel Museum | KIEL |
| Moscow University Zoological Museum | MOSCOW |
| National Science Museum, Tokyo | NSM |

| | |
|---|---|
| Oberthür Collection, Paris Museum | Oberthür, PARIS |
| Prague Museum | PRAGUE |
| Stettin Town Museum, Poland | STETTIN |

My methods are in general consistent with those of other entomologists in writing on Micronesian insects. Note that the proportions given in descriptions of new species are based on actual measurements made with a microruler in a stereoscopic microscope. Width of head is width across the eyes; width of prothorax, greatest width; width of apex of prothorax, distance between the most advanced points of anterior angles; base of prothorax, between posterior angles; length of prothorax, greatest length at middle; width of elytra, greatest width with elytra closed. Proportions based on these measurements have been calculated with a slide rule. Total length has not been measured so exactly (because the total length of a specimen varies according to position and condition at death), but has usually been measured simply by setting the specimen beside a millimeter ruler under the stereoscopic microscope and reading off the length directly. If the specimen is hunched or twisted, the reading has been corrected to give approximate length in straight position.

This work on Micronesian Carabidae follows and is largely supplementary to my work on Carabidae of New Guinea (1952, 1962, 1968). In the following pages I have referred to these papers simply as "Carabid Beetles of New Guinea, Part—." H. E. Andrewes' (1927) paper on Carabidae of Samoa has also been referred to under the species concerned, but users should be warned that the drawings in Andrewes' paper are very inaccurate. Two more-recent papers, which will be found useful for the so-called Truncatipennes groups of Carabidae, are by Arnost Jedlicka (1963) and Akinobu Habu (1967).

## ANALYSIS AND GEOGRAPHIC PATTERNS

The carabid fauna of Micronesia is not yet fully known, but the present sample is sufficient to show its general nature. The fauna is obviously very depauperate and somewhat disharmonic. The total number of species of Carabidae thus far found in Micronesia is only 48 compared with more than 600 species found in New Guinea. There is also a notable deficiency of certain important subfamilies and tribes in Micronesia, notably of Cicindelinae—of which only one species may be native on the islands and it confined to the Bonins—and of fossorial Scaritini—of which only one (introduced) American species is known from the islands. On the other hand, very small Carabidae (*Tachys, Perigona*) make up a disproportionately large part of the Micronesian carabid fauna.

Ecologically, Micronesian Carabidae are rather diverse and include a number of ground-living forms, some of which are known to live in wet and some in rather dry places; several species are associated with logs or tree trunks; and some others probably live in foliage or under the leaf sheaths of plants. As would be expected, however, there are probably no Carabidae in Micronesia specifically associated with rivers or swamps. Most Micronesian Carabidae are winged and fly. The very distinct endemic agonine genus *Ponapagonum* of Ponape I. is flightless but is probably derived from a winged ancestor (many stocks in the tribe Agonini have undergone wing atrophy independently elsewhere). *Lesticus* species, known from fragments of one specimen found on Guam, is probably flightless but (outside Micronesia) the genus includes also fully winged forms which probably fly. The minute *Tachys truncatus* is dimorphically winged on the islands but is presumably dispersed by winged individuals. The still smaller (about 1 mm) *Typhlonesiotes zwaluwenburgi* is wholly flightless but may be dispersed by winds nevertheless, as other minute insects often are. Thus all Micronesian Carabidae are winged now, or likely to be derived from ancestors that were winged when they reached the islands, or so small that they may be dispersed by winds without flying. The whole native Micronesian carabid fauna may therefore have been wind-dispersed.

Table 1 shows the distribution of known Micronesian Carabidae. The table shows a concentration of species on the largest and best collected islands, as would be expected. The carabid faunas of some of the smaller and less collected islands must still be very incompletely known. The table shows also that the fauna is mainly Oriental in origin. Two species have apparently been introduced from America (*Clivina fasciata*, *Selenophorus pyritosus*) and 2 from Australia (*Gnathaphanus licinoides*, *G. picipes*). All the other species (except a few of which the origins are not determinable) have evidently come from the Orient, directly or indirectly. A few have probably reached Micronesia by way of New Guinea (perhaps *Tachys ochrioides*, *T. yunax*, and the ancestor of *Violagonum dentifer*), but even these represent originally Oriental rather than Australian stocks. Therefore, judging by its Carabidae, Micronesia would go in the Oriental Region, if it were to be assigned to a region at all. I prefer to consider it a broad fringing area which has derived its depauperate fauna mainly from the west.

What I have just said applies to the fauna as a whole, including the introduced as well as the native species. Actually, native and introduced species cannot be distinguished in all cases, but I think that the greater part of the carabid fauna of the islands is or may be introduced. Of the total fauna of 29 genera and 48 species, only 1 genus and 13 species of Micronesian Carabidae

Table 1. Distribution of known Micronesian Carabidae

| | Micronesian Island Groups | | | | | | | | | | | | Other Localities |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Caroline | | | | | | | | |
| | Bonin | Volcano | N. Mariana | S. Mariana | Palau | Yap | Caroline Atolls | Truk | Ponape | Kusaie | Marshall | Gilbert | |
| Cicindelinae | | | | | | | | | | | | | |
| 1. Therates labiatus | | | | | | | × | | | | | | Philippines, New Guinea |
| 2. Cicindela bonina | × | | | | | | | | | | | | Endemic |
| Carabinae | | | | | | | | | | | | | |
| Ozaenini | | | | | | | | | | | | | |
| 3. Pseudozaena orientalis opaca | | | | | × | | | | | | | | Philippines, New Guinea |
| Scaritini | | | | | | | | | | | | | |
| 4. Clivina fasciata | | | | × | | | | | | | | | Mexico, Philippines |
| Harpalinae | | | | | | | | | | | | | |
| Bembidiini | | | | | | | | | | | | | |
| 5. Tachys fasciatus | | | | | × | × | | | | | | | Africa, S. Asia to Australia |
| 6. T. sexguttatus | | | | | | | | | | | × | | S. Asia to New Guinea to Polynesia |
| 7. T. truncatus | | | | × | × | × | | × | × | | | | S. Asia to New Guinea |
| 8. T. ochrioides | | | | | × | × | | | | | | | New Guinea |
| 9. T. brachys | | | | | × | | | | | | | | S. Asia to New Guinea |
| 10. T. ceylanicus | | | | × | × | | | × | | | | | S. Asia to New Guinea |
| 11. T. luteus | | | | × | | | | | | | | | Singapore, Hawaii, Tahiti |
| 12. T. fumicatus | | | | | × | | | × | | | | | Africa, S. Asia to New Guinea |
| 13. T. umbrosus | | | | × | × | × | | × | × | | | | S. Asia to New Guinea |
| 14. T. yunax | | | | × | × | × | | | | × | × | × | New Guinea, West Indies |
| 15. Typhlonesiotes zwaluwenburgi | | | | × | | | | | | | | | Hawaii |
| Pterostichini | | | | | | | | | | | | | |
| 16. Morion orientale | | | | | × | | | | | | | | S. Asia to Philippines, Moluccas |
| 17. Lesticus species? | | | | × | | | | | | | | | Endemic? |
| Agonini | | | | | | | | | | | | | |
| 18. Notagonum caritum | | | | × | | | | | | | | | Endemic |
| 19. Violagonum dentifer | | | | | × | | | | | | | | Endemic |
| 20. Colpodes laetus laetus | × | | | | | | | | | | | | Philippines, New Guinea |
| 20a. C. laetus pacificus | | | | | | | | | | × | | | Samoa |
| 21. Altagonum paulum | | | | | | | | | | × | | | Endemic |
| 22. Ponapagonum dybasi | | | | | | | | | × | | | | Endemic |
| 23. P. pairoti | | | | | | | | | × | | | | Endemic |
| Perigonini | | | | | | | | | | | | | |
| 24. Perigona ruficollis | | | | | | × | | | × | | | | Oriental Region |
| 25. P. plagiata | | | | | × | | | | | × | | | S. Asia to New Guinea |
| 26. P. nigriceps | × | × | | × | × | × | × | × | × | × | | | Cosmopolitan (carried by man) |
| Chlaeniini | | | | | | | | | | | | | |
| 27. Chlaenius flaviguttatus | × | | | × | × | | | | | | | | S. Asia to Australia |
| 28. C. tetragonoderus palauensis | | | | | × | | | | | | | | Endemic |
| 29. C. marianensis | | | | × | | | | | | | | | Endemic |
| Harpalini | | | | | | | | | | | | | |
| 30. Gnathaphanus licinoides | | × | × | × | × | × | | | | | | | Australia, New Guinea |
| 31. G. picipes | | | | × | | | | | | | | | Australia, S. New Guinea |
| 32. Harpaloxenus rasilis | | | | | × | | | | | | | | Endemic |
| 33. Selenophorus pyritosus | | | | × | | | | | | | | | Central America, Polynesia |
| 34. Egadroma quinquepustulata | × | | | | × | × | | | | | | | S. Asia to Australia |
| 35. E. smaragdula | | | | × | × | × | × | × | × | × | × | × | S. Asia to Australia, Pacific |
| Anaulacini | | | | | | | | | | | | | |
| 36. Aephnidius opaculus | | | | × | | | | | | | | | Oriental Region |
| Lebiini | | | | | | | | | | | | | |
| 37. Somotrichus elevatus | | | | | × | | | | | | | | Cosmopolitan (carried by man) |
| 38. Holcoderus decolor | | | | | × | × | | | | | | | Endemic |
| 39. Mochtherus tetraspilotus | | | | × | | | | | | | | | Oriental Region, Samoa |
| 40. Celaenephes parallelus | | | | | × | × | | | | | | | S. Asia to Australia |
| 41. Plochionus pallens | | | | × | | | | | | | | | Cosmopolitan |
| 42. Endynomena pradieri | | | × | × | | | × | | | × | | | Oriental Region, Polynesia |
| 43. Anchista binotata | | | | × | | | | | | | | | S. Asia to New Guinea |
| Pentagonicini | | | | | | | | | | | | | |
| 44. Pentagonica pallipes | | | | | × | × | | | | | | | S. Asia to Australia |
| 45. P. erichsoni | | | | × | × | × | | | | | | | S. Asia to Australia |
| 46. P. blanda | | | | × | × | | | | × | × | | | S. Asia to Australia |
| 47. P. trukensis | | | | | | | | × | | | | | Endemic |
| Hexagoniini | | | | | | | | | | | | | |
| 48. Hexagonia palauensis | | | | | × | | | | | | | | Endemic |

appear to be recognizably differentiated on the islands, and these endemic forms represent only 11 separate stocks—that is, the 2 endemic *Chlaenius* (1 on the Palau Islands and 1 on the Marianas) may be derived from 1 ancestor, and the 2 species of *Ponapagonum* have evidently differentiated from 1 ancestor on Ponape. The endemic Micronesian Carabidae are:

*Cicindela bonina*, Bonin Is.
*Lesticus sp.*, S. Mariana Is.
*Notagonum caritum*, S. Mariana Is.
*Violagonum dentifer*, Palau
*Altagonum paulum*, Kusaie
*Ponapagonum dybasi*, Ponape
*P. pairoti*, Ponape
*Chlaenius t. palauensis*, Palau
*C. marianensis*, S. Mariana Is.
*Harpaloxenus rasilis*, Palau
*Holcoderus decolor*, Palau, Yap
*Pentagonica trukensis*, Truk
*Hexagonia palauensis*, Palau

Of these, 5 stocks are on the Palau Is., 3 on the S. Mariana Is. and no more than 1 stock on any other island or island group. All these endemic stocks are apparently derived from the west. *Cicindela bonina* has probably come from Asia above the tropics; the *Chlaenius* and *Hexagonia*, probably from the Philippines rather than New Guinea; the *Violagonum*, probably from New Guinea rather than the Philippines; and the other endemic stocks from undetermined parts of the Indo-Australian Archipelago.

The remaining 35 species of Micronesian Carabidae (almost 3/4 of the whole fauna) are not recognizably differentiated. Some are surely introduced in Micronesia and all of them may have been dispersed at least in part by man. Dispersal by man is suggested in various ways in various cases. For example, 4 species of *Tachys* that occur in Micronesia have been intercepted in quarantine in Hawaii or the United States (see *T. truncatus*, *ceylanicus*, *fumicatus*, and *umbrosus*), and specimens of *Egadroma smaragdula* have apparently been intercepted in quarantine too. The minute, blind *Typhlonesiotes zwaluwenburgi* has been found in sugarcane fields in Hawaii under circumstances which suggest that it may have been carried in soil with plants. *Clivina fasciata*, which is fossorial too, may have been carried in soil with sweet potatoes. Several other Carabidae that occur in Micronesia are found on or in logs and may have been carried in with shipments of timber; these include *Pseudozaena o. opaca*, *Tachys umbrosus*, *T. yunax*, *Morion orientale*, *Perigona ruficollis*, *P. plagiata*, and

*Mochtherus tetraspilotus*. In addition, many of the winged species fly to light, sometimes in numbers, and may be attracted to lighted ships in harbor and transported regardless of their habits otherwise. A few species—including *Perigona nigriceps* and perhaps the widely distributed species of *Somotrichus*, *Plochionus*, *Endynomena*, and *Anchista*—occur or may occur in stored products, perhaps as predators of other insects, and may be carried by man with fruit, or grain, or other materials.

The geographic patterns of the introduced or probably introduced Carabidae on the islands are diverse. *Perigona nigriceps*, *Somotrichus elevatus*, and *Plochionus pallens* have been carried over all the warm parts of the world by commerce and may have been brought into Micronesia from any direction. The failure of collectors to find *Perigona nigriceps* on the Marshalls and Gilberts is noteworthy. The insect probably does occur there; if not, its absence is surprising and interesting. *Tachys luteus*, which has been found at 5 localities from Singapore to Hawaii and Tahiti, is remarkable for the small number of specimens collected, only 6 in all; its place of origin is still unknown. *Typhlonesiotes zwaluwenburgi* is almost surely introduced in the S. Mariana Is. as well as in Hawaii; its place of origin is also unknown. The Central American species *Clivina fasciata* (species #4 in Table 1) and *Selenophorus pyritosus* (#33), both of which occur on Guam as well as on some other Pacific islands, have a distribution pattern that suggests dispersal by Spanish galleons. These ships regularly made the voyage from Mexico to the Philippines over a period of 250 years, and Guam was a regular stopping point (Merrill, 1954). *Tachys yunax* (#14) may have been carried eastward from the western Pacific to America by return traffic. *Mochtherus tetraspilotus*, which occurs in S. Asia but not New Guinea, may have been carried to the S. Mariana Is. by Japanese traffic before or during the Second World War, although the species appeared on Samoa earlier than that. *Gnathaphanus picipes*, found in numbers on the S. Mariana Is. in 1944 and 1945 but previously known only from Australia and southern New Guinea (vicinity of Port Moresby), may have been introduced by American military traffic. Some other species may have been introduced into Micronesia from two or more directions: for example, *Chlaenius flaviguttatus* and *Egadroma quinquepustulata* may have reached the Bonin Is. from Asia and the Palau Is. from New Guinea. Actually, I think the dispersals of some introduced Carabidae in Micronesia may have been much more diverse than the bare records now show and that multiple introductions of such common species as *Perigona nigriceps* and *Egadroma smaragdula* may have occurred.

## SYSTEMATICS

### Key to Micronesian Tribes and Genera of Carabidae

1. Form characteristic (figs. 1*a,b*); antennae inserted above bases of mandibles (Cicindelinae) ........ 2
   Form diverse; antennae inserted at sides behind bases of mandibles (Carabidae proper) ........ 3

2( 1). Lower surface without close pubescence; elytra without markings (species #1) ........ **Therates**
   Lower surface with close, adpressed, white pubescence; elytra with white markings (species #2) ........ **Cicindela**

3( 1). Elytron with a flange-like tooth on outer margin at apical curve; form characteristic (fig. 1*c*); length 14–17.5 mm (species #3) ........ (Ozaenini) **Pseudozaena**
   Elytron without such tooth ........ 4

4( 3). Form cylindric (fig. 1*d*); length *ca.* 5–6 mm (species #4) ........ (Scaritini) **Clivina**
   Form not cylindric ........ 5

5( 4). Palpi with apical segments minute; size small, length not over 3 mm (Bembidiini) ........ 6
   Palpi with apical segments not minute; size usually larger ........ 7

6( 5). Eyes present; length *ca.* 1.25–3.0 mm (species #5–14) ........ **Tachys**
   Eyes absent; length *ca.* 1 mm (species #15) ........ **Typhlonesiotes**

7( 5). Two setae over each eye (posterior seta sometimes far behind eye, notably in *Hexagonia* (fig. 8*d*) ........ 8
   One seta over each eye ........ 17

8( 7). Form characteristic (fig. 8*d*); posterior supraocular setae far behind eyes; length 9.5–11.3 mm (species #48) ........ (Hexagoniini) **Hexagonia**
   Form diverse; posterior supraocular setae nearer posterior corners of eyes ........ 9

9( 8). Outer elytral margin (seen from side or below) interrupted before apex (Pterostichini) ........ 10
   Outer elytral margin not interrupted ........ 11

10( 9). Form subparallel (fig. 2*f*); antennae moniliform; front tibiae with outer apical angles produced; length 12–14 mm (species #16) ........ **Morion**
   Form broader (fig. 3*a*); antennae not moniliform; front tibiae without process; length *ca.* 18–19 mm (species #17) ........ **Lesticus**

11( 9). Elytra with apices moderately produced; upper surface not pubescent; elytra with 3rd intervals 3-punctate with anterior puncture on outer and median and posterior punctures on inner edge of interval (Agonini) ........ 12
   Elytra with apices not as above, usually obliquely truncate or broadly rounded, rarely (*Holcoderus*, fig. 7*a*) strongly sinuate; other characters diverse ........ 16

12(11). Inner wings fully developed *and* median lateral pronotal setae present ........ 13
   *Either* wings atrophied *or* median lateral pronotal setae absent ........ 15

13(12). Size under 10 mm *and* head relatively short *and* elytra not spined (species #18) ........ **Notagonum**
   *Either* size 10 mm or more and head relatively longer *or* elytra spined ........ 14

14(13). Head relatively short; elytra spined (species #19) ........ **Violagonum**
   Head relatively longer; elytra not spined (species #20) ........ **Colpodes**

15(12). Wings fully developed; median-lateral pronotal setae absent; 4th hind-tarsal segments not as described below (species #21) ........ **Altagonum**
   Wings atrophied; median-lateral pronotal setae present; 4th hind-tarsal seg-

ments with very long, nearly equal lobes truncate at apex (species #22–23) ........ **Ponapagonum**

16(11). Length 4 mm or less *and* mandibles slender, weakly curved; form (fig. 5*c*) *Tachys*-like but with apical segments of palpi large (species #24–26)........ **Perigona**

Larger *or*, *if* length 4 mm or less, mandibles short and strongly curved or semicircular........ 21

17( 7). Upper surface with (short) pubescence; prothoracic margin with seta near base (Chlaeniini) (species #27–29)........ **Chlaenius**

Upper surface not pubescent; prothoracic margin with seta at or before middle (Harpalini)........ 18

18(17). Smaller, length 7 mm or less (species #34–35)........ **Egadroma**

Size larger, length 8 mm or more........ 19

19(18). Elytron with 1 (minute) dorsal puncture, on 3rd interval behind middle (species #32)........ **Harpaloxenus**

Elytron with several or many dorsal punctures........ 20

20(19). ♂ front tarsi densely pubescent below; elytron with (usually larger) dorsal punctures mostly on the intervals (species #30–31)........ **Gnathaphanus**

♂ front tarsi each with 2 rows of scales below; elytron with several rows of (small) punctures mostly on or attached to the striae (species #33)........ **Selenophorus**

21(16). Mandibles broad semicircular; length 3–6 mm........ 22

Mandibles usually more elongate, never semicircular; size larger (except in *Somotrichus*, fig. 6*d*) (Lebiini)........ 23

22(21). Form characteristic (fig. 6*c*); prothorax transverse, not angulate (Anaulacini) (species #36)........ **Aephnidius**

Form characteristic (fig. 8*c*); prothorax narrower, angulate at sides (Pentagonicini) (species #44–47)........ **Pentagonica**

23(21). Small (length not over 4 mm); pronotum with several setae each side (species #37)........ **Somotrichus**

Larger; pronotum usually with only 2 setae each side........ 24

24(23). Middle and hind tarsi with 4th segments emarginate, not bilobed........ 25

Middle and hind tarsi with 4th segments bilobed; the lobes at least 1/2 total length of segment........ 28

25(24). Apices of elytra very strongly sinuate (species #38)........ **Holcoderus**

Apices of elytra obliquely truncate or broadly rounded, weakly or not sinuate........ 26

26(25). Elytra 4-maculate; pronotum with (very short) pubescence (species #39) ........ **Mochtherus**

Color uniform black or brown; upper surface not pubescent........ 27

27(26). More slender (fig. 7*c*); eyes large; length 6–7.5 mm (species #40) ........ **Celaenephes**

Stouter (fig. 7*d*); eyes smaller; length 7–9.5 mm (species #41) ........ **Plochionus**

28(24). Upper surface pubescent; color plain brown (species #42) ........ **Endynomena**

Upper surface not pubescent; elytra 2-plagiate (species #43) ........ **Anchista**

## Subfamily CICINDELINAE

### Genus **Therates** Latreille

*Therates* Latreille, 1817, (IN) Cuvier, Règne Animal **3:** 179 (type species: *Cicindela labiata* Fabricius).

A genus of 30-odd species, distributed from S.E. Asia to New Guinea

and the Solomons (not Australia). One species is recorded (below) from one remote atoll in the Caroline Is., but it can hardly be native there.

**1. Therates labiatus** (Fabricius) (fig. 1*a*)

*Cicindela labiata* Fabricius, 1801, Systema Eleutheratorum **1**:232 ["in Oceani pacifici Insulis" (probably the Malay Archipelago), type in Fabricius, KIEL].

*Therates labiatus* Horn, 1926, (IN) Junk-Schenkling Coleop. Cat., Carabidae: Cicindelinae, p. 110. —Darlington, 1962, Carabid Beetles of New Guinea, Part 1:338.

Form as in Fig. 1*a*; blue-black with testaceous labrum and legs; length *ca.* 17 mm.

DISTRIBUTION: Java, Celebes, Moluccas, New Guinea, Solomons, Philippines, E. Caroline Is.

CAROLINE ATOLLS, NUKUORO: 2 specimens, in BISHOP, Sep. 1, 1954, Niering.

This conspicuous insect, which has not been found anywhere else in Micronesia, can hardly be native on remote Nukuoro Atoll. In New Guinea adults are commonly found on low foliage in rain forest and are diurnal. I do not know the habits of the larvae and cannot say whether they are likely to be carried by man.

### Genus **Cicindela** Linnaeus

*Cicindela* Linnaeus, 1758, Systema Naturae **10**(1):407 (type species: *C. campestris* Linnaeus, of Europe). —Horn, 1926, (IN) Junk-Schenkling, Coleop. Cat., Carabidae: Cicindelinae, p. 127. —Darlington, 1962, Carabid Beetles of New Guinea, Part 1:340.

This well-known, cosmopolitan genus is well represented in the Indo-Australian area including New Guinea (Darlington, 1962), but only one species has been found in Micronesia, on the Bonin Is.

**2. Cicindela bonina** Nakane and Kurosawa (fig. 1*b*)

*Cicindela bonina* Nakane and Kurosawa, 1959, National Sci. Mus. (Tokyo), Bull. **4**:372, fig. (Chichi Jima, Bonin Is.; type in NSM).

Form and markings as in fig. 1*b*; color dark with dull metallic tinges, markings of elytra white; length *ca.* 11 mm.

DISTRIBUTION: Bonin Is.

BONIN IS.: 1 specimen in BISHOP (with additional labels in Japanese), Jul. 1912, Kuwana; Chichi Jima (Takeda-meadow), Aug. 11, 1937 (the types).

The single specimen in BISHOP is in fair condition externally but has been gutted by dermestids. It agrees with the Nakane-Kurosawa figure and shows

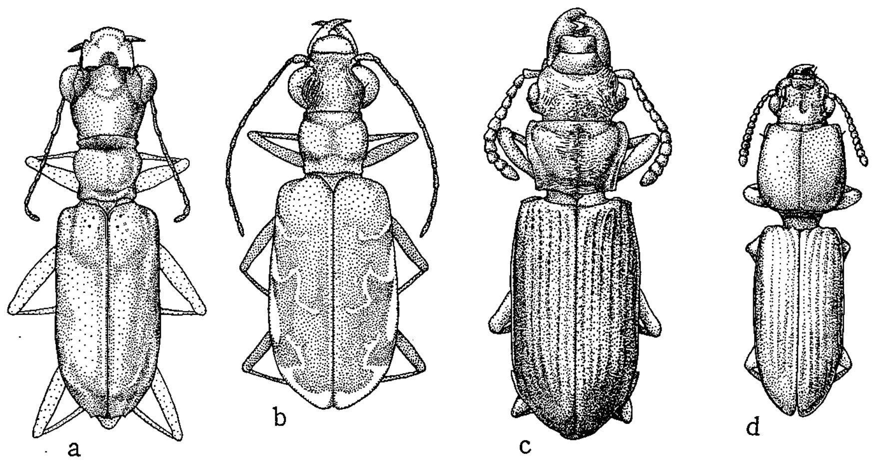



FIGURE 1. **a,** *Therates labiatus;* **b,** *Cicindela bonina;* **c,** *Pseudozaena orientalis opaca;* **d,** *Clivina fasciata.*

that the species has existed on the Bonin Is. at least since 1912. Nakane and Kurosawa compared the species with *C. elisae* Motschulsky of E. Asia including Japan, and I have confirmed this relationship by comparison with specimens in the MCZ. *C. bonina* is also remarkably similar to *C. trifasciata* Fabricius, which is a common species of Central and adjacent parts of North and South America and the West Indies, and which lives in saline habitats, especially along the seacoast. It would be interesting to know whether there is in fact a trans-Pacific relationship here.

## SUBFAMILY CARABINAE

### TRIBE OZAENINI

#### Genus **Pseudozaena** Castelnau

*Pseudozaena* Castelnau, 1834, Etude Ent. **1**:55 (type species: *P. megacephala* Castelnau = *Ozaena orientalis* Klug). —Bänninger, 1927, Deutsche Ent. Zeits. for **1927**:192.

As limited by Bänninger, this genus is confined to the Malay Peninsula, Taiwan, and the Malay Archipelago, E. to New Guinea, New Britain, the Solomons, the Admiralties, and the Palau Is. The single species of the genus divides into 3 geographic subspecies.

**3. Pseudozaena orientalis opaca** (Chaudoir) (fig. 1*c*)

*Picrus opacus* Chaudoir, 1868, Soc. Ent. Belgique, Ann. **11**:46 [Moluccas (see Andrewes, 1924); type in Oberthür, PARIS].

*Pseudozaena opaca* Andrewes, 1924, Ann. Mag. Nat. Hist. **14**(9):585.

*Pseudozaena tricostata opaca* Gressitt, 1953, B. P. Bishop Mus. Bull. **212**:95, fig. 45a.

*Pseudozaena orientalis opaca* Darlington, 1962, Carabid Beetles of New Guinea, Part 1:352.

Large (among Micronesian Carabidae); dull brownish black; elytra variably subcostate, with 3 costae on each elytron often relatively prominent (but less so than in subspecies *tricostata*); outer edge of each elytron near apical curve with flange-like tooth; length 14–17.5 mm.

DISTRIBUTION: Formosa, Philippines, Moluccas, New Guinea, W. Caroline Is. (Palau). [*P. o. orientalis* (Klug): Malay Peninsula, Sumatra, Java, Borneo; *P. o. tricostata* Montrousier: New Britain, Solomons].

PALAU. BABELTHUAP: Ngiwal, Aug. 1951 ("compost 1"), Sep.-Oct. 1951 ("fed on *Oryctes* eggs"), Gressitt. KOROR: Ngarmid, Aug. 1949, Mead; Koror, Nov. 1947 (in and under charred log in *Tapioca* patch), Dybas; Apr. 1960 (ex compost pile), Owen; Oct. 1963 (coconut log), Gressitt; Nov. 1963 (light trap), Bianchi; Feb. 1964 (ginger roots), Owen. ANGAUR: near Shrine, 20 m, Apr. 1936, Kondo; Oct. 1944, Ford.

This is a predator on eggs and small larvae of *Oryctes* (Gressitt, 1953), and it presumably feeds also on other small invertebrates, especially in logs and injured trunks of trees. It may sometimes be carried by man in logs or lumber. Whether it is native or introduced in the Palaus is therefore doubtful.

## TRIBE SCARITINI

### Genus **Clivina** Latreille

*Clivina* Latreille, 1802, Hist. Nat. Crustacés et Insects **3**:96 (type species: *Tenebrio fossor* Linnaeus, of Europe). —Kult, 1947, Soc. Ent. Czechoslovakia, Acta **44**:32 [subgenera]. —Darlington, 1962, Carabid Beetles of New Guinea, Part 1:358.

*Clivina* is a well known, nearly cosmopolitan genus, well represented on all continents and many islands. Most of the species are fossorial. They are primarily predaceous, but a few damage seeds in the ground.

#### 4. **Clivina** (**Paraclivina**) **fasciata** Putzeys (fig. 1*d*)

*Clivina fasciata* Putzeys, 1846, Soc. R. Sci. Liege, Mem. **41**:624 (Yucatan; type presumably in BRUSSELS). —Bates, 1881, Biologia Centrali-Americana, Insecta, Coleop. **1,** Part 1:32.

Slender, subcylindric; reddish, sometimes with dusky area just behind middle of elytra; length *ca.* 5–6 mm.

DISTRIBUTION: Mexico (Bates, 1881), Philippines (Luzon, Leyte, Mindoro, Negros), S. Mariana Is.

S. MARIANA Is. GUAM: "Guam Island," Fullaway, #1165 (US). SAIPAN: As Mahetog area, Nov. 1944, Edgar; same, Nov. 1944, Jan. 1945, Dybas; Mt. Tagpochau, 1.6 km N.N.E. of summit, Nov. 1944, Edgar.

This species is presumably introduced on the Marianas as well as on the Philippines, from which I have seen numerous specimens collected on the islands named above. The subgenus to which it belongs is known otherwise only in America and (supposedly) Australia (Kult, see reference under genus). *C. fasciata* represents a group of very similar species (or possibly one variable species) which is widely distributed in Mexico and Central America, parts of N. America (*ferrea* LeConte), some W. Indies (*insularis* Jaquelin-Duval), and S. America. It may have been carried from Mexico to Pacific islands and the Philippines by Spanish galleons (see Introduction). The beetle may have been carried in damp earth or with rootcrops, perhaps with sweet potatoes; it does live in soil, and sweet potatoes were carried very widely in the Pacific.

Individuals of *fasciata* from the Philippines and Saipan vary less in color than American ones do, being usually plain rufous or with only a vague dusky blotch on elytra. American specimens have the labrum usually 6-setose, occasionally 4-setose. In the Philippine series, the labrum is usually 4-setose, but 6-setose individuals occur too. Both conditions occur in the series from Saipan: the median and lateral setae are always well developed, but the intermediate pair is much weaker and either variable or often broken off.

## SUBFAMILY HARPALINAE

### TRIBE BEMBIDIINI

Small Carabidae (less than 3 mm in Micronesia), with apical segments of palpi minute.

In addition to the 2 genera recorded below, a 3rd should be looked for in Micronesia. It is *Bembidion*, of which the subgenus *Cillenus* is represented on many islands in the western Pacific area. Species are known from Japan, Taiwan, Palawan in the Philippines, Morotai in the Moluccas, New Guinea, Fiji, eastern Australia, and New Zealand. The species of *Cillenus* are larger than *Tachys*, usually 4–5 mm long, rather slender, and very large-headed. All live in more-or-less saline habitats, some of them between tide lines on the seacoast. For further details see Darlington (1953 and 1959).

#### Genus **Tachys** Stephens

*Tachys* Stephens, 1828, Illustrations British Ent., Mandibulata **2**:2,4 (type species: *T. scutellaris* Stephens, of Europe). —Darlington, 1962, Carabid Beetles of New Guinea, Part 1:400.

Small Carabidae (less than 3 mm in Micronesia); eyes present; apical segment of palpi

minute; wings usually long and fit for flight (exception in Micronesia: *T. truncatus*, which is dimorphic).

*Tachys* is a huge genus, best represented in the tropics but almost world-wide in distribution. The genus is structurally diverse and can be divided into many subgenera or small genera, but the divisions have not been worked out on a world-wide basis, and the Micronesian species are too few to be worth dividing into subgenera.

Ten species of *Tachys* have been found in Micronesia. They are all non-endemic, widely distributed elsewhere. Most live on the ground, especially in damp places, but *umbrosus* is found on or under bark of logs and tree trunks, and *yunax* is apparently associated with wood or wood debris. These two species may be carried with shipments of timber, and other *Tachys* may be carried by man in other ways. Four species which occur in Micronesia have in fact been intercepted in quarantine (see under *T. truncatus*, *ceylanicus*, *fumicatus*, and *umbrosus*). Their wide distributions, the habits of some of them, and the quarantine records suggest that all the *Tachys* in Micronesia may have been brought there by man.

### Key to Micronesian Species of Tachys

1. Apical recurved striole of elytron present, the posterior dorsal elytral puncture on or behind the curved tip of the striole........................................................2
 Apical recurved striole of elytron absent or, if present, not extending forward to posterior dorsal elytral puncture (*truncatus* group).........................................4

2(1). Mentum with 2 conspicuous foveae at base..................................................3
 Mentum without such foveae.......................................................................6

3(2). Posterior dorsal elytral puncture inside apical striole behind (not attached to) its hooked tip (fig. 2*a*) (*fasciatus* group); color testaceous with darker elytral fascia .............................................................................................. **5. fasciatus**
 Posterior dorsal elytral puncture attached to hooked tip of apical striole (fig. 2*b*) (*quadrillum* group); color dark, elytra 4-maculate with pale spots......**6. sexguttatus**

4(2). A short apical striole present.......................................................**8. ochrioides**
 Apical striole absent ...................................................................................5

5(4). Prothorax with basal angles blunted, sides of base somewhat rounded-oblique; mentum usually without foveae................................................... **7. truncatus**
 Prothorax with basal angles well defined, sides of base truncate; mentum conspicuously 2-foveate ...................................................................**9. brachys**

6(2). Apical striole about 1/2-way between suture and elytral margin; elytral margin not distinctly setulose or serrate................................................................7
 Apical striole close to margin; elytral margin setulose or serrate.............................9

7(6). Frontal foveae shallow, short, not extending onto clypeus (*politus* group)............8
 Frontal foveae deep, long, extending onto and converging on clypeus (*fumicatus* group) ........................................................................... **12. fumicatus**

8(7). Elytra each with 2 or 3 well-impressed striae...................................**10. ceylanicus**
 Elytra each with 5 or 6 striae..........................................................**11. luteus**

9(6). Elytral margins setulose but not dentate (*nanus* group); depressed, dull brownish black ........................................................................**13. umbrosus**
Elytral margins serrate behind humeri (*singularis* group); more convex, red or testaceous usually with dark elytral fascia..........................................**14. yunax**

**5. Tachys fasciatus** (Motschulsky)

*Trechus fasciatus* Motschulsky, 1851, Soc. Nat. Moscow, Bull. **24,** Part 2(4): 506 ["Ind. Or." (East Indies in a very broad sense); type in Moscow]. —Darlington, 1962, Carabid Beetles of New Guinea, Part 1:411,412.

Form average in genus; color testaceous with head darker and elytra usually with broad transverse dark fascia; elytral margins not serrate; apical striole of elytron with anterior end hooked but not attached to posterior dorsal puncture; length *ca.* 2.5 mm.

DISTRIBUTION: Africa, S. Asia, Japan, S.E. through the islands to New Guinea, Australia, New Britain, Solomons, New Caledonia, W. Caroline Is. (Palau, Yap).

PALAU. BABELTHUAP: Ngaremlengui, Jun. 1957 (at light), Sabrosky. KOROR: Sep. 1952, Apr. 1953 (at light), Jun. 1953, Beardsley. PELELIU: N. central, Jul., Aug. 1945, Dybas.

YAP. YAP: Weloy, Jun. 1957 (at light), Sabrosky.

*T. fasciatus* is often common on the ground in a variety of wet, muddy, and grassy places, especially in open country, less often in forest. Its very wide distribution suggests that it is wind-dispersed or perhaps sometimes carried by man.

**6. Tachys sexguttatus** (Fairmaire)

*Bembidium sexguttatum* Fairmaire, 1849, Revue et Mag. Zool. **1**(2):296 [Tahiti; type probably lost (t. Britton). —Britton, 1938, B.P. Bishop Mus., Occasional Papers **14** (6):104.

*Tachys quadrillum* Schaum, 1860, Berliner Ent. Zeits. **4:**20 (Celebes; type in GENOA). —Andrewes, 1927, Insects of Samoa 4, Fasc. 1:3. —Darlington, 1962, Carabid Beetles of New Guinea, Part 1:428, 429.

Slightly more slender and depressed than *T. fasciatus;* shining brownish black, each elytron usually with 2 (posthumeral and subapical) variable pale spots; apical striole of elytron with anterior end curved and attached to posterior dorsal puncture; length *ca.* 2.5 mm.

DISTRIBUTION: Ceylon, India, S. China to New Guinea; Samoa; Tahiti; Marshall Is.

MARSHALL IS. ARNO: Ine I., 1 specimen only, Aug. 25, 1950 ("nite lite on sea beach"), La Rivers.

This insect belongs to a "difficult" group (of closely interrelated, poorly understood species), which is represented in most parts of the world, and which occurs mainly in saline (coastal) or alkaline (interior) habitats. *T. sexguttatus* itself is recorded from an extensive range (above); *T. plagiatus*

Putzeys, which may be conspecific, is recorded from Celebes and the Philippines to N.E. Australia; and even some tropical American forms seem very similar, although their relationships cannot be determined without a worldwide revision of the group.

**7. Tachys truncatus** (Nietner)

*Bembidium truncatum* Nietner, 1858, Ann. Mag. Nat. Hist. **2**(3):421 (Ceylon; type in ZMB). —Darlington, 1962, Carabid Beetles of New Guinea, Part 1:430,431.

Very small; testaceous; apical striole of elytron absent; wings dimorphic; length usually less than 1.5 mm.

DISTRIBUTION: Ceylon, India to New Guinea, New Britain, S. Mariana Is., Caroline Is.

S. MARIANA IS. SAIPAN: Sadog Talofofo, Talofofo area (under rocks and leaves along stream, some on mud); Achugau area (under decaying algae at edge of marsh); As Mahetog area (sweeping air at dusk); Chalan Kanoa (under bark); Laulau Bay; Dec. 1944, Jan, Feb. 1945, all collected by Dybas.

PALAU. PELELIU: E. coast, Jan. 1948 (under chips), Dybas.

YAP. YAP: Weloy, Jun. 1957 (at light), Sabrosky; S. Yap, Jul. 1950 (freshwater pond), Goss; N. Yap, Aug. 1950, Goss; no further loc., Jun. 1950, Goss.

TRUK. TOL (TON): Mt. Unibot, Feb. 1953 (breadfruit waste, Berlese funnel), Gressitt.

PONAPE. Colonia, Agric. Exper. Sta., Jan. 1953 (stream pools, light trap), 16 m, Gressitt.

The wings of *truncatus* prove to be dimorphic. In the series from Peleliu, only 2 individuals had the wings long and folded, 15 were reduced to 1/2 or less the length of an elytron. The single individual from S. Yap and the 2 from Truk are short-winged too. All other specimens listed above (31) are long-winged.

Widely distributed Carabidae as small as this are likely to be dispersed by wind, and this one is sometimes carried by man; a specimen in the US is labeled "in lily bulb from Japan at Seattle (No. 2747) Wash." The species of this group of *Tachys* usually occur in rotting wood and other debris on the ground in more-or-less damp places.

**8. Tachys ochrioides** Darlington

*Tachys ochrioides* Darlington, 1962, Carabid Beetles of New Guinea, Part 1: 430, 431 (Nadzab, N.E. New Guinea; type in MCZ).

Slightly larger than preceding (*truncatus*), more slender; testaceous; apical striole of elytron sharply impressed but short, not reaching posterior dorsal puncture; wings long and folded in all 61 specimens; length *ca.* 2 mm.

DISTRIBUTION: New Guinea, W. Caroline Is. (Palau, Yap).

PALAU. BABELTHUAP: Ngaremlengui, Jun. 1957 (at light), Sabrosky; Ngerehelong, Dec. 1947 (at light), Dybas; same, May 1957, Sabrosky; Ngiwal, May 1957 (at light, 1 in jungle), Sabrosky; same, 1 m, Sep. 1951, Dec. 1952 (light trap), Gressitt; Ngaremeskang, 25 m, Dec. 1952 (light trap), Gressitt; Oller, May 1953, Beardsley. KOROR: 25 m, Dec. 1952 (light trap), Gressitt; Apr., May, Jul. 1953 (at light), Beardsley.

YAP. YAP: Weloy, Jun. 1957 (at light), Sabrosky; N. Yap, Jul-Aug. 1950, Goss; S. Yap, hill behind Yaptown, 50 m, Nov., Dec. 1952 (light trap), Gressitt; Tomil Dist., Jul.-Aug. 1950, Goss; Ruul-Nif, Sep. 1939, Esaki.

Like other *Tachys* of this group, *ochrioides* probably lives in debris on the ground. Its repeated occurrence at light suggests that it flies freely.

### 9. **Tachys brachys** Andrewes

*Tachys brachys* Andrewes, 1925, Mus. Civ. Genoa, Ann. **51**:375,377 (Singapore; type in BM). —Darlington, 1962, Carabid Beetles of New Guinea, Part 1:430,433.

Stouter and more convex than 2 preceding species (*truncatus, ochrioides*); brownish testaceous; apical elytral striole absent; wings long and folded;* length *ca.* 1.5 mm.

DISTRIBUTION: India, S.E. China, and Formosa to New Guinea, W. Caroline Is. (Palau).

PALAU. KOROR: Jun. 1953 (at light), Beardsley.

YAP. YAP: S. Yap, hill behind Yaptown, 50 m, Dec. 1952 (light trap), Gressitt; Yap, and Gagil Dist., Jul.-Aug. 1950, Goss.

### 10. **Tachys ceylanicus** (Nietner)

*Bembidium ceylanicum* Nietner, 1858, Ann. Mag. Nat. Hist. (3) **2**:423 (Ceylon; type in ZMB). —Britton, 1948, Hawaiian Ent. Soc., Proc. **13**:239. —Darlington, 1962, Carabid Beetles of New Guinea, Part 1:438,446.

Form about average in genus, rather convex; testaceous; elytral margins not setulose or serrate; each elytron with 3 impressed punctate striae; length *ca.* 2 mm or less.

DISTRIBUTION: Ceylon, India to Philippines, New Guinea, New Hebrides (in US), S. Mariana Is., Caroline Is. (Palau, Truk), Hawaii.

S. MARIANA IS. GUAM: 1937, Oakley (US). SAIPAN: As Mahetog area, Nov. 1944, Edgar; same, Nov. 1944, Jan., Feb. 1945, Dybas; Sadog Talofofo, Talofofo area, Feb. 1945, Dybas; Mt. Tagpochau, 1.6 km N.N.E. of summit, Jan. 1945, Dybas; Laulau Bay, Jan., Feb. 1945, Dybas; Fanagam, May 1940, Yasumatsu and Yoshimura; "Saipan," Nov. 1944, Weeming #556, 46–2446.

*Although all Micronesian individuals (only 5) are long-winged, *brachys* is known to be dimorphically winged elsewhere (Darlington, 1962).

PALAU. KOROR: Feb., Apr., May 1953, Beardsley. GARAKAYO (NGERGOI): Aug. 1945, Dybas, Hagen. PELELIU: N. central, Jul., Aug. 1945, Dybas; E. coast, Jan., Feb. 1948, Dybas; W. coast, Feb. 1948, Dybas; no further loc., Jul., Aug. 1945, Hagen. ANGAUR: Aug. 1945, Feb. 1948 (ex leaf litter), Dybas.

TRUK. MOEN: 31 m, Jun. 1946, Townes #4–52.

The habitat of *ceylanicus* is not recorded but is probably in debris in damp places on the ground. The species is sometimes carried by man; 4 specimens in the US are labeled "alive in packing of palm seeds—Sidpor (nr. Calcutta) INDIA—Wash. D. C. Oct. 10, 1934 A27784."

**11. Tachys luteus** Andrewes (fig. 2*c*)

*Tachys luteus* Andrewes, 1925, Mus. Civ. Genoa, Ann. **51**:387,390 (Singapore; type in BM). —Zimmerman, 1953, Hawaiian Ent. Soc., Proc. **15**:4.

Member of *politus* group; moderately broad (in group); reddish testaceous, not marked; elytral margins not setulose, not serrate; each elytron with 6 slightly impressed slightly punctate striae, 6th less impressed than others, and all striae except 1st obsolete apically; ♂ with 2 segments each front tarsus slightly widened and with squamae; length *ca.* 2.4 mm.

DISTRIBUTION: Singapore, Hawaii, Tahiti, S. Mariana Is.

S. MARIANA IS. SAIPAN: As Mahetog area, 1 ♂ specimen, Oct. 1945 (at light), Ducoff (FM).

This species is known only from the unique type from Singapore; 2 specimens taken in Hawaii and submitted to me in 1952 by Dr. E. C. Zimmerman; 1 specimen from Papeete, Tahiti, collected in 1927 by J. M. Clements (US);

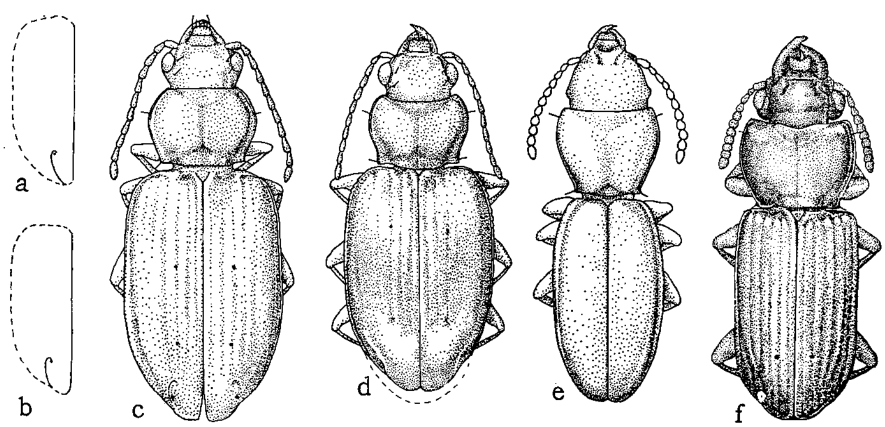



FIGURE 2. **a,** *Tachys, fasciatus* group, apical striole and puncture; **b,** *Tachys, quadrillum* group, apical striole and puncture; **c,** *T. luteus;* **d,** *T. yunax;* **e,** *Typhlonesiotes zwaluwenburgi;* **f,** *Morion orientale.*

and the specimen now recorded from Saipan. One of the Hawaiian specimens has been compared with the type by Dr. E. B. Britton. The appearance of this species in Hawaii is evidence that it is sometimes carried by man.

**12. Tachys fumicatus** Motschulsky

*Tachys fumicatus* Motschulsky, 1851, Soc. Nat. Moscow, Bull. **24,** Part 2(4): 509 [from "Ind. Or." (E. Indies in a very broad sense); type in Moscow]. —Darlington, 1962, Carabid Beetles of New Guinea, Part 1:469.

Convex; reddish or piceous, elytra with 4 pale maculate spots (each elytron with more-or-less distinct posthumeral and better-defined subapical spot); frontal sulci sharply incised, converging onto clypeus; elytral margins not setulose or serrate; each elytron with 2 impunctate striae; length *ca.* 2 mm.

DISTRIBUTION: Africa, S. Asia N. to Japan and S.E. to Philippines and New Guinea, New Britain, Caroline Is. (Palau, Truk).

PALAU. BABELTHUAP: Ulimang, Dec. 1947 (1 at light), Dybas; Ngaremlengui, May., Jun. 1957 (at light), Sabrosky; Ngiwal, 1 m, Jul. 1952 (light trap), Gressitt; E. Ngatpang, 65 m, Dec. 1952 (light trap), Gressitt. PELELIU: E. coast, Jan. 1948 (under chips), Dybas; N. central, Jul., Aug. 1945 (at light), Dybas; N. end, May 1957 (at light), Sabrosky.

TRUK. MOEN: 0–30 m, Jul., 1946, Townes, #1443.

In parts of its range *T. fumicatus* is very common on the ground in wet places. A specimen in the US is labeled "in packing on orchids from P. I. at Honolulu Hawaii, Apr. 13, 1932, #4227."

**13. Tachys umbrosus** Motschulsky

*Tachys umbrosus* Motschulsky, 1851, Soc. Nat. Moscow, Bull **24,** Part 2(4): 507 (from "Ind. Or."; lectotype should be in Moscow). —Darlington, 1962, Carabid Beetles of New Guinea, Part 1:477.

Depressed; dull brown or black, unmarked; elytral margins behind humeri minutely setulose but not serrate; apical striole near outer margin of elytron; length *ca.* 2.5–3 mm.

DISTRIBUTION: Ceylon and S. Asia S.E. to the Philippines, New Guinea, Solomons; S. Mariana Is.; Caroline Is.

S. MARIANA IS. GUAM: Pt. Ritidian, Aug. 1945, Gressitt.

PALAU. KOROR: Nov. 1947 (under bark, and under bark of banyan log); limestone ridge N. of inlet, Jan. 1948. PELELIU: E. coast, Jan. 1948, (under bark, and under bark of banyan log); N. central, Jul., Aug. 1945. BABELTHUAP: Ulimang, Dec. 1947. All collected by Dybas. BABELDAOB (BABELTHUAP): Ngardok-Ngarmisukan (Ngaremeskang), Ngardok Colony, Feb. 1938, Esaki.

YAP. YAP: Tomil Dist., Colonia, Jul.-Aug. 1950, Goss; Dugor, Mar.

1949, Maehler; near Yaptown, Jul. 1946, Townes, #1224. S. MAP Is.: Yap Group, Jul.-Aug. 1950, Goss.

TRUK. TOL (TON): Olej Foup, Apr. 1940, Yasumatsu and Yoshimura. FEFAN: Mesa-Urunna, Nov. 1937, Esaki. DUBLON (TONOAS): Dec. 1935 (rotten bark), Ono.

PONAPE. Jokaj (Sokehs), Feb. 1948 (under bark), Dybas; Kolonia (Colonia)-Nampir, Jan. 1938, Esaki; Kolonia-Paliker (Palikir), Jul. 1939, Esaki.

*T. umbrosus* and its immediate allies (*nanus* Gyllenhal of temperate Eurasia, *brunnipennis* Macleay of N.E. Australia, *inornata* Say of North America, etc.) live on and under the bark of fallen trees and logs. They are therefore likely to be carried by man in shipments of logs and timber. A specimen (BISHOP) is labeled with a red disk and number M. 3049.

**14. Tachys yunax** Darlington (fig. 2*d*)

*Tachys yunax* Darlington, 1939, Soc. Cubana Hist. Nat., Mem. **13:**87 (Sanchez, Dominican Republic, W. Indies; type in MCZ); 1962, Carabid Beetles of New Guinea, Part 1:482. —Louwerens, 1967, Ent. Meddelelser **35:**197 (under *Tachys singularis* Andrewes).

Form about average in genus; testaceous or brown, usually with a dark transverse elytral fascia; elytral margins serrate behind humeri; length *ca.* 2 mm or slightly more.

DISTRIBUTION: New Guinea, Aru Is., S. Mariana Is., Caroline Is., Marshall Is., Gilbert Is.; W. Indies.

S. MARIANA IS. GUAM: Port Ajayan, Jun. 1945 (under coconuts, etc. on beach), Dybas.

PALAU. KOROR: Apr., Jun. 1953 (at light), Beardsley. BABELTHUAP: Ngaremlengui, Jun. 1957 (at light), Sabrosky; Ngiwal, May 1952 (at light), Sabrosky; Ngiwal, 1 m, no date or collector.

YAP. YAP: Kanif, Jul.-Aug. 1950, Goss.

KUSAIE. Pukusrik, 1 m, Apr. 1953 (mangrove, light trap), Clarke.

MARSHALL IS. ARNO: Ine I., Aug. 1950 ("nitelite sea beach"), La Rivers. JALUIT: Jabor I., May 1958, Gressitt.

GILBERT IS. TARAWA: Bairiki I., Nov. 1957, Krauss. ONOTOA: Buiartun I., Aug. 1951 (at light), Moul (#200).

*T. yunax* is probably native somewhere in the western Pacific area. It is fairly widely distributed there, and a closely related species (*singularis* Andrewes) has been found on Celebes. The species is known in America from only a single collection, but 70 specimens were taken (by myself) in a natural habitat, in masses of wood debris thrown up at the mouth of the Yuna River,

Dominican Republic, W. Indies. This occurrence suggests that *yunax* is associated with wood and that it may have been carried eastward from the western Pacific to the W. Indies by the same galleon commerce that apparently carried *Clivina fasciata* and *Selenophorus pyritosus* westward (see Introduction).

### Genus **Typhlonesiotes** Jeannel

*Typhlonesiotes* Jeannel, 1937, Rev. Française d'Ent. **3**:323 (type species: *T. zwaluwenburgi* Jeannel).

**15. Typhlonesiotes zwaluwenburgi** Jeannel (fig. 2*e*)

*Typhlonesiotes zwaluwenburgi* Jeannel, 1937, Rev. Française d'Ent. **3**:325, figs. 156–162 (Oahu, Hawaii; type in PARIS). —Zimmerman, 1938, Hawaiian Ent. Soc., Proc. **10**:132. —Britton, 1948, Hawaiian Ent. Soc., Proc. **13**:241.

Minute; blind; testaceous; length *ca.* 1 mm.

DISTRIBUTION: Hawaii; S. Mariana Is.

S. MARIANA IS. SAIPAN: Hills E. of Garapan (9 specimens), Jan. 1945 (under board), Dybas, lot 576; As Mahetog area, (1 specimen), May 1945 (in decaying banana stalks and leaves), Dybas, lot 1058.

The types of this species are said by Jeannel to have been taken "*sur les piquets enfoncés dans le sol.*" Dr. E. C. Zimmerman informs me that Dr. Van Zwaluwenburg found the insect in soil in sugarcane fields in Hawaii, sometimes as many as 68 individuals per square foot at 12–22 cm below the surface, and that it has been found on Kauai, Oahu, and Hawaii (islands of the Hawaiian Is.). This minute beetle is probably carried by man, perhaps in wood that has been lying in the ground, or in soil with sugarcane plants or banana "seed." Its place of origin is unknown; it probably is not native in Hawaii or Saipan.

## TRIBE PTEROSTICHINI

### Genus **Morion** Latreille

*Morion* Latreille, 1810, Considerations General... Insects, p. 159 (type species: *Harpalus monilicornis* Latreille). —Andrewes, 1946, R. Ent. Soc. London, Proc. **15**,B:86. —Darlington, 1962, Carabid Beetles of New Guinea, Part 1:500.

Species of *Morion* occur in all the warmer parts of the world. Most of them live on dead tree trunks or logs, hiding under bark by day and hunting at night. They are likely to be carried by man in timber. They may also be dispersed on natural drift: supposedly endemic *Morion* are known on Fiji, New

Caledonia, and Christmas Is. Several closely interrelated, variable species of the genus (see Andrewes, 1946) are widely distributed in the Indo-Australian Archipelago, and one of them reaches the western corner of Micronesia.

**16. Morion orientale** Dejean (fig. 2*f*)

*Morion orientalis* Dejean, 1825, Species Général Coléop. **1**:432 (Java; type in Oberthür, PARIS). —Andrewes, 1930, Cat. Indian Insects, Part 18—Carabidae, p. 221. —Darlington, 1962, Carabid Beetles of New Guinea, Part 1:505 (in text).

?*Morion orientalis* Van Emden, 1953, Hawaiian Ent. Soc., Proc. **15**:51 (Ngiwal, Babelthuap).

Rather large (among Micronesian Carabidae), subparallel, depressed; shining black, unmarked; head large, genae prominent behind eyes, antennae short; outer-apical angle of front tibia produced; length *ca.* 12–14 mm.

DISTRIBUTION: S.E. Asia and islands to the Moluccas (not New Guinea), E. to Philippines, W. Caroline Is. (Palau).

PALAU. PELELIU: Jul., Aug. 1945, Dybas; Sep. 1951 ("from trunk containing *Oryctes*"), Gressitt. BABELTHUAP: Ngiwal, 1 specimen, Nov. 1951 ("coconut trunk/sawmill"), Gressitt, #7. KOROR: Apr.-May, 1949 (under bark), Langford. Garakayo: Aug. 1945 (under bark), Dybas.

For habits and possible dispersal by man, see under genus, above.

## Genus **Lesticus** Dejean

*Lesticus* Dejean, 1828, Species Général Coléop. **3**:189 (type species: *L. janthinus* Dejean). —Darlington, 1962, Carabid Beetles of New Guinea, Part 1:521.

Relatively large Carabidae (largest in Micronesia); last 3 ventral segments transversely impressed near base; antennae not geniculate.

Range of genus: S.E. Asia to N.E. Australia, E. to Philippines, Solomons, Mariana Is.

**17. Lesticus species**? (fig. 3*a*)

*Lesticus species* Swezey, 1942, B.P. Bishop Mus., Bull. **172**:151.

Form as in fig. 3*a*; black, pronotum shining, elytra slightly duller; prothoracic impressions weak, impunctate; elytral striae entire, finely punctulate; metepisterna short, not much longer than wide; length of entire insect probably *ca.* 18–19 mm.

DISTRIBUTION: S. Mariana Is.

S. MARIANA IS. GUAM: Machanao, Jun. 30, 1936 (evidently found dead), Usinger.

This record is based on remains of one specimen consisting of the shell of the prothorax, the elytra, and parts of the meso- and metasterna. It is probably a *Lesticus* but possibly a *Trigonotoma;* the partial specimen does not show the

elytra. *Head*: 0.78 and 0.77 width of prothorax. *Prothorax:* wide; width/length 1.53 and 1.56; base/apex 1.39 and 1.42; side margins moderately wide and moderately reflexed; base and apex finely margined; disc with impressed middle line and usual anterior and posterior transverse impressions; baso-lateral impressions wide, shallow, irregularly subpunctate, as are lateral margins, especially posteriorly. *Elytra:* wide, not especially narrowed anteriorly; width elytra/prothorax 1.67 and 1.69; subapical sinuations distinct; apices independently emarginate, each with short spine at suture and denticle limiting emargination externally; striae entire, impressed, not distinctly punctate; intervals slightly convex, 3rd 3-punctate. *Inner wings:* fully developed. *Lower surface* not punctate, not pubescent. *Legs:* hind tarsi impressed each side above; 4th hind-tarsal segments with long outer and much shorter inner lobe; 5th segments without distinct accessory setae. *Secondary sexual characters:* ♂ front tarsi slightly dilated, 3 segments 2-seriately squamulose; ♂ with 1, ♀ with 2 setae each side of apex of last ventral segment. *Length* 8.5–9.3 mm; *width* 3.4–3.8 mm.

Holotype, ♂ (US 70706), Ulimang, Babelthuap I., Palau Is., Dec. 10, 1947, Dybas. Paratypes, all from Palau Is.: 4 (Bishop, FM, MCZ), with same data as holotype; 1 (Bishop) E. Ngatpang, Babelthuap I., Dec. 7, 1952 (light trap), Gressitt; 3 (Bishop, US, MCZ), N.W. Auluptagel, 25 m, Dec. 12, 13, 1952 (light trap), Gressitt; 2 (Bishop), Koror, #M-6463, M-5636, Beardsley; 1 (FM), N. central Peleliu I., Aug. 29, 1945, Dybas.

DISTRIBUTION: W. Caroline Is. (Palau).

*V. dentifer* differs from *V. violaceum* (Chaudoir), of New Guinea etc., by being almost black rather than violet or blue in color, and by having the apical spine of each elytron nearer the suture and the denticle more widely separated from the spine. The proportions given are of the ♂ holotype and a ♀ paratype with the same data.

### Genus **Colpodes** Macleay

*Colpodes* Macleay, 1825, Annulosa Javanica, p. 17 (type species: *C. brunneus* Macleay, of Java). —Chaudoir, 1859, Soc. Ent. France, Ann. **7**(3):351. —Darlington, 1952, Carabid Beetles of New Guinea, Part 2:115,158.

Usually large, often *Platynus*-like Agonini; often brightly colored; with supraocular and pronotal setae and dorsal punctures of elytra as in *Notagonum*. Conventionally, *Colpodes* is said to be distinguished from *Agonum* etc. by lobed 4th hind-tarsal segments, but this character varies from species to species.

As I use it, and as it has been used by many other specialists, *Colpodes* is a pantropical genus of convenience.

**20. Colpodes laetus laetus** (Erichson) (fig. 3*d*)

*Anchomenus laetus* Erichson, 1834 (1835), Akad. Caesareae Leopoldino-Carolinae Germanicae Naturae Curiosorum, Nov. Act. **16:** Suppl. p. 222, pl. 37, fig. 2 (Luzon; type in ZMB).

*Colpodes laetus* Darlington, 1952, Carabid Beetles of New Guinea, Part 2:160, 163.

Form average; head, prothorax, lower surface, and appendages red or reddish, elytra greenish (in Micronesian specimens) sometimes with apices slightly rufescent; elytra bluntly subdenticulate at sutural angles; length *ca.* 10–12 mm.

DISTRIBUTION: Philippines, Celebes, New Guinea, Solomons, New Hebrides, Bonin Is.

BONIN IS. CHICHI JIMA: May 1956 (window), Clagg; Omura, Jun., Jul. 1949 (at light), Mead; same, Apr. 1958 (camp beach), Snyder. HAHA JIMA: Okimura, Apr. 1958, Snyder.

This is probably an arboreal species that lives in foliage and that might be carried in thatching material, but I know nothing more specific about its habits.

**20a. Colpodes laetus pacificus** Andrewes

*Colpodes pacificus* Andrewes, 1927, Insects of Samoa, Part 4, Fasc. **1**:8 (Samoa; type in BM).

As typical *laetus* (above) but color dark brown, head and pronotum not or only slightly reddish, elytra not or only faintly greenish.

DISTRIBUTION: Samoa, E. Caroline Is. (Kusaie).

KUSAIE. Mt. Fuinkol, *ca.* 634 m, Jan. 1953 (in axils of *Freycinetia* leaves); Hill 1010, 300 m, Feb. 1953; Hill 541, 107 m, Mar. 1953 (at light); all by Clarke.

*Colpodes laetus* is evidently widely distributed on islands in the Pacific, but the details of its distribution and geographic variation are not yet adequately known. It is not yet recorded from Polynesia but may occur there under another name.

My identification of the Kusaie individuals as *pacificus* is made by comparison with specimens from Samoa.

### Genus **Altagonum** Darlington

*Altagonum* Darlington, 1952, Carabid Beetles of New Guinea, Part 2:116,185 (type: *A. caducum* Darlington).

Characters primarily as of *Notagonum* except median-lateral pronotal setae absent; form and some other characters more variable than in *Notagonum*.

This is still another genus of convenience, with many species on New Guinea especially in the mountains, and some elsewhere in the Indo-Australian Archipelago.

**21. Altagonum paulum** Darlington, n. sp. (fig. 4*a*)

Form as in fig. 4*a*; brown, appendages brownish testaceous; shining; reticulate microsculpture light and isodiametric on front, irregular and in part transverse on pronotum, transverse on elytra. *Head:* 0.80 and 0.79 width of prothorax; front with moderate sublinear impression each side anteriorly, impunctate. *Prothorax:* subquadrate; width/length 1.29 and 1.27; base/apex 1.26 and 1.22; side margins narrow, narrowly reflexed; base (finely) margined, apex

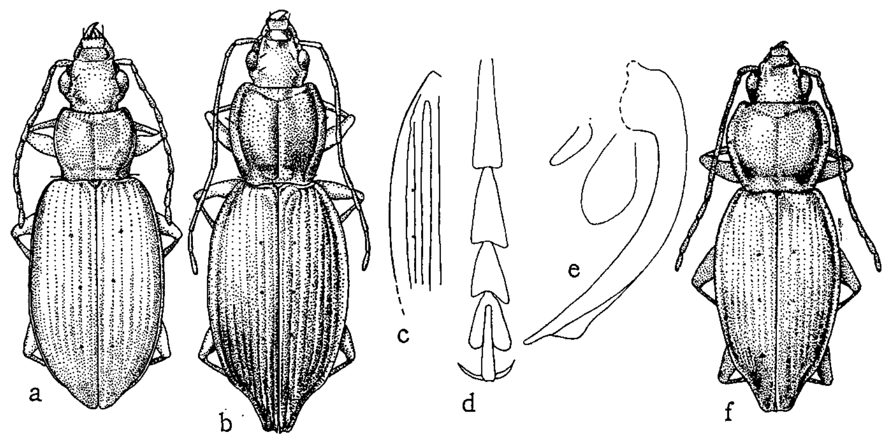



FIGURE 4. **a,** *Altagonum paulum;* **b,** *Ponapagonum dybasi;* **c,** same, outer striae and margin of left elytron (diagrammatic); **d,** same, right hind tarsus; **e,** same, ♂ copulatory organs; **f,** *P. pairoti.*

not; median line distinct, transverse impressions poorly defined, baso-lateral impressions shallow, irregular but scarcely punctate, each with impressed area extending forward subparallel to margin. *Elytra:* slightly narrowed toward base; width elytra/prothorax 1.54 and 1.63; subapical sinuations distinct; apices narrowly independently rounded; striae impressed, entire, not distinctly punctate; intervals convex, 3rd 3-punctate. *Inner wings:* fully developed. *Lower surface* not punctate, not distinctly pubescent (a trace of short sparse pubescence at extreme base of first abdominal segment). *Legs:* hind tarsi impressed each side; 4th segment emarginate, scarcely lobed; 5th segment without accessory setae. *Secondary sexual characters:* ♂ front tarsi slightly dilated, 3 segments 2-seriately squamulose; ♂ with 1, ♀ 2 setae each side of apex of last ventral segment. *Length* ±6 mm; *width* 2.0–2.4 mm.

Holotype, ♂ (US 70707) from Wakap, Kusaie, E. Caroline Is., 390 m, Apr. 7, 1953 (at light), Clarke; 11 paratypes (US, BISHOP, MCZ) all with same data as holotype. The proportions given are of the ♂ holotype and a ♀ paratype.

DISTRIBUTION: E. Caroline Is. (Kusaie).

In my key to New Guinean *Altagonum* (see reference under genus) this small species runs to couplet 7 but fits neither half of the couplet. It is perhaps most like (but not necessarily related to) *A. noctellum* Darlington and *planinox* Darlington (of New Guinea) but is smaller and lacks obvious ventral pubescence.

## Genus **Ponapagonum** Darlington, new genus

Medium-sized slender Agonini with 2 pairs supraocular and 2 pairs lateral pronotal setae and usually 3 (sometimes 2 or 4 or more) dorsal punctures on 3rd interval of elytron; inner wings atrophied; 4th hind-tarsal segments with 2 very long, nearly equal truncate lobes; ♂ front tarsi slightly (scarcely) dilated, 2-seriately squamulose, and ♂ with 1, ♀ 2 setae each side of last ventral segment; ♂ copulatory organs as in fig. 4*e*; other characters probably of generic value included in following specific description.

Type species: *Ponapagonum dybasi* Darlington (below)

In my key to genera of Agonini of New Guinea (Darlington, 1962, pp. 114 ff), *Ponapagonum* runs to couplet 4 but fits neither half of the couplet, differing from *Euplenes* in many ways (form, narrow mesosternal epimera, atrophied wings, etc.) and differing from all other genera of the key in form of 4th hind-tarsal segments. I cannot determine its exact relationships and therefore now treat the new genus as endemic to Ponape I. and of unknown (but presumably Indo-Australian) origin.

The tarsal structure, and also notes on some specimens of *P. dybasi*, suggest that the species of this genus are arboreal.

### Key to Species of Ponapagonum

1. Larger, length usually over 8 mm; narrower, prothoracic width/length 1.03 and 1.05 .......... **22. dybasi**
   Smaller, length under 8 mm; wider, prothoracic width/length 1.19 and 1.17 .......... **23. pairoti**

### 22. **Ponapagonum dybasi** Darlington, n. sp. (figs. 4*b-e*)

Form as in fig. 4*b*; brown, more reddish below, appendages brown; shining; reticulate microsculpture light and isodiametric on front, light and transverse on pronotum, heavier and transverse on elytra. *Head:* elongate, 0.73 and 0.68 width of prothorax; eyes moderate, not abruptly prominent; genae oblique and shorter than eyes; mandibles strong, moderately arcuate; labrum subtruncate or slightly emarginate, 6-setose; clypeus subtruncate, 1-setose each side; antennae and palpi long, slender; mentum with acute tooth. *Prothorax:* oval-subquadrate; width/length 1.03 and 1.05; base/apex 1.25 and 1.11; side margins moderate, moderately reflexed; base indistinctly margined, apex not margined; disc with middle line impressed, transverse impressions indistinct, baso-lateral impressions rather small, poorly defined, not distinctly punctate, each impression extending forward parallel to margin nearly to anterior margin. *Elytra:* oval, narrowed to humeri; width elytra/prothorax 1.47 and 1.41; each elytron with disc sometimes broadly impressed for much of length (variation individual); margins angulate at humeri; outer margins remarkably variable (individually), sometimes wide as intervals 8+9 together (fig. 4*c*), sometimes not much wider than interval 9 (see discussion below); subapical sinuations broad; apices produced, narrow, rounded or subangulate opposite second interval or second stria, apex of each elytron then emarginate to denticle at suture; striae entire, well impressed, not distinctly punctulate; intervals slightly convex, 3rd with usually 3 (sometimes 2 or 4 or more) punctures mostly on inner edge by 2nd stria, 9th with series of well-spaced punctures. *Inner wings:* vestigial. *Lower surface* not punctate, not pubescent. *Legs:* slender; hind tarsi (fig. 4*d*) wide but varying somewhat in width, 4th hind-tarsal segment with 2 very long nearly equal lobes truncate at apex; 5th segments without accessory setae; claws slender, moderately curved, simple. *Length* 8.0–10.7 mm (rarely slightly smaller); *width* 2.9–3.5 mm.

Holotype, ♂ (US 70708), Mt. Nanalaud, Ponape I., alt. *ca.* 610 m., Mar. 18, 1948, Dybas; 27 paratypes (US, Bishop, FM, MCZ), Mt. Nanalaud, alt. *ca.* 300–600+ m; Mar. 17, 18, 19 and some undated, 1948; beating vegetation, in *Pandanus*, *Pandanus* crowns (some without ecological data), Dybas.

The proportions given are of the ♂ holotype and a large ♀ paratype from *ca.* 610 m alt., Mar. 18.

Additional material. PONAPE: 5 large ♀♀, Nipit-Ninani, Jan. 1938, Esaki; 1 ♀, Mt. Ninani, Jul. 1939, Hatsushima; 1 ♂, Mt. Ninani, Aug. 1949, Glassman.

DISTRIBUTION: E. Caroline Is. (central Ponape I., localized in mountains).

This species is remarkably variable in characters which do not ordinarily vary in Agonini, including width of elytral margins and impression of elytral discs. The holotype is a large male (*length* 9.7, *width* 3.4 mm) with wide elytral margins but discs of elytra not much impressed, but other specimens (paratypes) from the same locality vary individually in the characters described. There may be a tendency for larger specimens with wider margins and more impressed elytral discs to occur at higher altitudes, but the correlation is at best irregular. Real analysis of and understanding of this variation will require much more material more exactly localized. All the specimens assigned to this species come from a mountainous area only a few kilometers in diameter and within an altitude range of only a few hundred meters, and most of the specimens are well labeled with locality, altitude, etc. according to usual museum standards. These beetles are flightless, however, and they may possibly divide into very local subpopulations, although my impression is that additional material will show that the variation is in fact individual rather than microgeographic.

**23. Ponapagonum pairoti** Darlington, n. sp. (fig. 4*f*)

With characters of preceding species (*dybasi*) but smaller and relatively broader. *Head:* 0.63 and 0.65 width of prothorax. *Prothorax:* width/length 1.19 and 1.17; base/apex 1.12 and 1.06. *Elytra:* width elytra/prothorax 1.25 and 1.27; margins wide, but less so than in extreme *dybasi;* disc not or at most slightly impressed. *Length* 6.8–7.8 mm; *width* 2.6–2.9 mm.

Holotype, ♀ (US 70709), Mt. Pairot, Ponape I., summit, alt. *ca.* 600+ m, Mar. 13, 1948, Dybas. Paratypes: 2 ♀♀ (BISHOP, MCZ) with same data as holotype. The proportions given are of the holotype and a paratype.

Additional material. PONAPE: 1 ♀, Mt. Temwetemwensekir (Tamatamansakir), summit, alt. *ca.* 450 m, Mar. 23, 1948, Dybas; same, 1 ♀, Mar. 20, 1936, Otomo.

DISTRIBUTION: E. Caroline Is. (central Ponape I., localized in mountains).

Mt. Pairot, the type locality of the present species, is only a few kilometers from Mt. Nanalaud, where *P. dybasi* occurs.

## Tribe PERIGONINI

### Genus **Perigona** Castelnau

*Perigona* Castelnau, 1835, Étude Ent., p. 151 (type species: *P. pallida* Castelnau, of Africa). —Darlington, 1968, Carabid Beetles of New Guinea, Part 3:6.

Small *Tachys*- or *Trechus*-like Carabidae; with 2 pairs supraocular and 2 pairs lateral prothoracic setae (in Micronesian species); apical segments of palpi long, subconical.

Distribution of genus: native species in all principal tropical regions; 1 species (*P. nigriceps*, #26 below) carried by man to all tropical and warm-temperate parts of the world, including many remote islands.

Species of subgenus *Perigona s. str.* (see following key) usually live under bark or in rotting wood; those of subgenus *Trechicus*, in leaf litter and debris on the ground. Two Oriental species of *Perigona s. str.* and 1 cosmopolitan species of subgenus *Trechicus* reached Micronesia. All may, I think, have been carried there by man.

#### Key to Micronesian Species of Perigona

1. Group of 3 punctures in elytral margin (at *ca.* 2/3 or 3/5 of elytral length) forming a straight line (fig. 5*a*, *Perigona s. str.*); color castaneous or in part rufous with apices of elytra not darker....................2
   These 3 punctures forming a triangle (fig. 5*b*, subgenus *Trechicus*); color variable, but apices of elytra often dark....................**26. nigriceps**

2(1). Third (posterior) dorsal puncture of elytron on disc more than 1/10 of elytral length from apex; length *ca.* 3–4 mm....................**24. ruficollis**
   This puncture close to apex, just above apical marginal channel; length 2.2–2.8 mm....................**25. plagiata**

### 24. **Perigona** (*s. str.*) **ruficollis** (Motschulsky)

*Nestra ruficollis* Motschulsky, 1851, Soc. Nat. Moscow, Bull. **24,** Part 2(4):506 ["Ind. or." (E. Indies in a very broad sense); type in Moscow].

Largest *Perigona* in Micronesia; castaneous with prothorax and base of elytra often reddish; length *ca.* 3–4 mm.

DISTRIBUTION: India, Ceylon, Burma, to Sumatra, Borneo (and see following notes); Caroline Is. (Yap, Ponape).

YAP. Yap: S. Yap I., N. Yap I., Ruul Dist., Colonia, Kanif, Dugor, Jul.-Aug. 1950, Goss.

PONAPE. Jokaj I., Feb. 1948 (under bark of breadfruit), Dybas; Mt. Temwetemwensekir, 180 m, Jan. 1953 (rotten *Exorrhiza* trunk), Gressitt; same, 420 m, Jun.-Sep. 1950, Adams.

This is one of a group of poorly defined, ordinary-looking species of *Perigona s. str.* which are not well understood and which have been distinguished mainly

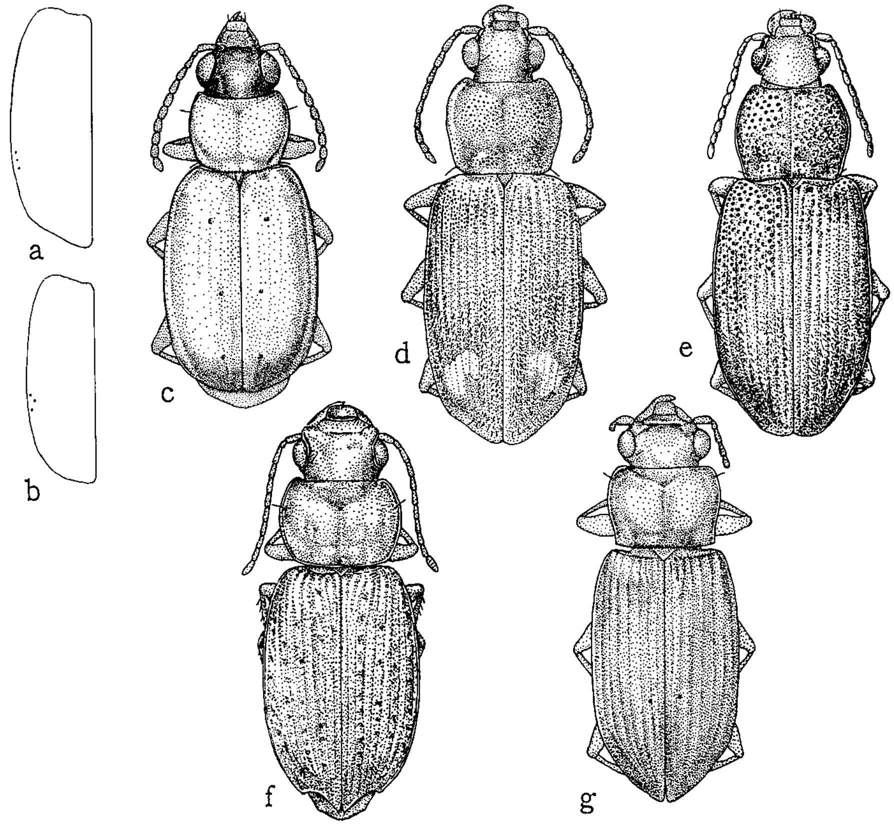


FIGURE 5. **a,** *Perigona, s. str.*, submarginal punctures of left elytron; **b,** *P.*, *Trechicus*, submarginal punctures of left elytron; **c,** *P. nigriceps;* **d,** *Chlaenius tetragonoderus palauensis;* **e,** *C. marianensis;* **f,** *Gnathaphanus licinoides;* **g,** *Harpaloxenus rasilis.*

by color. In addition to *ruficollis*, the group includes *erythroma* Andrewes of Sumatra, *subcyanescens* Putzeys of New Guinea, and *horni* Jedlicka of the Philippines. These "species" are all about the same size, with several elytral striae indicated, and with the posterior dorsal puncture of the elytron more than 1/10 of elytral length from apex. I have used the name *ruficollis* because it is the oldest of the names concerned, but the coloration of some of the Micronesian specimens (described above) is more like that of *erythroma.*

**25. Perigona** (s. *str.*) **plagiata** Putzeys

*Perigona plagiata* Putzeys, 1875, Mus. Civ. Genoa, Ann. **7:**734 (Aru and Key Is. and New Guinea; types in GENOA). —Darlington, 1964, Psyche **71:** 125; 1968, Carabid Beetles of New Guinea, Part 3:11.

A small *Perigona s. str.*; reddish testaceous with head and discs of elytra darker; length *ca.* 2.2–2.8 mm.

DISTRIBUTION: S.E. Asia and Formosa to New Guinea (an Australian record is probably erroneous—Darlington, 1964), E. to Philippines, New Hebrides, Caroline Is. (Palau, Kusaie).

PALAU. ANGAUR: 4 specimens, Feb. 1948 (under bark), Dybas.

KUSAIE. Mutunlik, 22 m, Feb., Mar., Apr. 1953 (at light), Clarke; Mt. Matante, 580 m, Feb. 1953 (under dead breadfruit bark), Clarke.

**26. Perigona (Trechicus) nigriceps** (Dejean) (fig. 5*c*)

*Tachys nigriceps* Dejean, 1831, Species Coléop. **5**:44 (N. America; in Oberthür, PARIS).

*Perigona nigriceps* auct. including Csiki, 1931, in Junk-Schenkling Coleop. Cat., Carabidae, Harpalinae **5**:897 (synonymy and world distribution). —Darlington, 1968, Carabid Beetles of New Guinea, Part 3:11.

The only species of subgenus *Trechicus* in Micronesia; color variable but (in Micronesia) usually in part brownish testaceous with head and apices of elytra darker; length 2.5–3.0 mm.

DISTRIBUTION: cosmopolitan (see Csiki, above, for more details); widely distributed in Indo-Australian area, New Caledonia, Bonin Is., Volcano Is., S. Mariana Is., Caroline Is.

BONIN IS. CHICHI JIMA: Omura, May-Jun. 1958 (camp beach), Snyder.

VOLCANO IS. IWO JIMA: Sep. 1945, Dybas.

S. MARIANA IS. SAIPAN, TINIAN, ROTA, GUAM; many records, 1937–1945 (in decaying vegetation etc., decaying fruit, under bark, at light); Matusita, Edgar, Ducoff, Dybas, Hagen, Necker, Oakley, Stuntz, Gressitt, Bohart and Gressitt, Strong.

PALAU. PELELIU, NGERGOI, ANGAUR, KOROR: many records, 1945–1952 (sweeping air at dusk, at light, ex leaf litter, light trap), Ducoff, Dybas, Hagen, Gressitt, Beardsley.

YAP. YAP: Dugor, Kanif, N. Yap I., Gagil Dist., Jul.-Aug. 1950, Goss.

CAROLINE ATOLLS. MOGMOG: May 1945, Young. KAPINGAMARANGI: 1947, Buck and Emory.

TRUK. WENA (MOEN): 30 m, Jun. 1946, Townes, #452. TOL: Mt. Unibot, Feb. 1953 (breadfruit waste, Berlese funnel), Gressitt.

PONAPE. Colonia-Sokehs, Jan. 1938, Esaki; Mt. Nahnalaud, *ca.* 610 m, Mar. 1948, Dybas.

KUSAIE. Malem, Jul. 1937, Esaki; Mutunlik, Mar. 1953 (at light), Clarke.

This is one of the two commonest carabids in Micronesia (the other, *Egadroma smaragdula*): about 450 specimens have been seen from there (a few in capsules cannot be counted exactly). None is dated before 1937, but the species is likely to have been widely distributed on Pacific islands before

modern collecting began. Although not collected on the Marshall and Gilbert Is., it will probably be found to occur there.

### Tribe CHLAENIINI

### Genus **Chlaenius** Bonelli

*Chlaenius* Bonelli, 1810, Obs. Ent. 1, tab. synoptic, Mem. Acad. Sci. Turin, **18**:21–78 (type species: *Carabus marginatus* Rossi, of Europe). —Darlington, 1968, Carabid Beetles of New Guinea, Part 3:20.

Relatively large (in Micronesia) carabids; often 2-maculate (an irregular subapical spot on each elytron); entire upper surface (sometimes irregularly) punctate (or roughened) and pubescent; 1 seta over each eye; 1 seta on each side of prothorax, at or near basal angle; wings fully developed (in Micronesian species).

This well known genus is essentially cosmopolitan. Two Oriental stocks of it are represented in Micronesia.

### Key to Micronesian Species of Chlaenius

1. Mandibles normal, not transverse; legs pale with dark knees.........**27. flaviguttatus**
   Mandibles very short, very strongly arcuate externally, subtransverse; knees not contrastingly dark ..........2

2(1). Each elytron with a subapical pale mark; elytral punctures moderate, several in width of a sutural interval ..........**28. tetragonoderus palauensis**
   Elytra not marked; elytral punctures very coarse on disc, only 1 or 2 in width of a sutural interval ..........**29. marianensis**

### 27. **Chlaenius flaviguttatus** Macleay

*Chlaenius flaviguttatus* Macleay, 1825, Annulosa Javanica, p. 14 (Java; type in BM). —Darlington, 1968, Carabid Beetles of New Guinea, Part 3:26.

*Chlaenius flaviguttatus* var. *guttatus* Eschscholtz, 1829, Zool. Atlas **5**:26, pl. 25, fig. 8 (Manila; type in Moscow). —Swezey, 1942, B.P. Bishop Mus. Bull. **172**:150. —Andrewes, 1927, Insects of Samoa, Part 4, Fasc. 1:3.

*Chlaenius biguttatus* Fullaway, 1912, Ent. Notes, Guam, pp. 31,34.

A medium-sized, rather slender, usually 2-maculate *Chlaenius* with mandibles normal; whole upper surface punctate; ♂ front femur toothed below near base; length *ca.* 12–14.5 mm.

DISTRIBUTION: Sumatra, Java, to New Guinea and Australia, E. to Philippines, New Britain, New Ireland, Solomons, New Hebrides, New Caledonia, Fiji, Samoa, Tahiti, Bonin Is., S. Mariana Is., W. Caroline Is. (Palau).

BONIN IS. Chichi Jima: Jul. 1949, Kondo.

S. MARIANA IS. Saipan: Aspeldêto, Nov. 1941; Asgonno, Asperudêto, May 1942; all by Matusita. Tinian: Nov. 1952 (at light), Beardsley, M-4870. Agiguan: Aug. 1954 (at light), Davis. Rota: Jun. 1952, Kondo. Guam: 1911, Fullaway, #1129; same, Feb. 1938 (with dead wet grass in rice field),

Oakley, #38-9038; Piti, Sep. 1937 (at light), Oakley; same, Sep., Nov. 1936 (under old coconut husk in pasture and in lawn), Swezey; Yigo, Aug. 1952, Krauss.

PALAU. KOROR: Koror, Jan. 1938, Esaki. ANGAUR: Aug. 1945, Dybas. PELELIU: Jul. 1945, Dybas.

*Chlaenius flaviguttatus* lives on the ground in a variety of wet places, especially in more-or-less open country. Unspotted individuals occur in many parts of the species' extensive range but have not yet been found in Micronesia. Fullaway says that, on Guam, the insect "is very active about vegetable patches as a caterpillar predator."

**28. Chlaenius tetragonoderus palauensis** Darlington, n. subsp. (fig. 5*d*)

Form as in fig. 5*d*; head and pronotum black or greenish black, elytra black each with irregular subapical reddish testaceous spot, lower surface black or slightly reddish, appendages irregular reddish brown with tibiae and first 3 segments (especially 3rd) of antennae darker; characters including short transverse mandibles, as in *tetragonoderus* Chaudoir, except upper surface slightly more coarsely punctate and more shining between punctures, and prothorax relatively narrower at base. *Head:* 0.74 and 0.75 width prothorax. *Prothorax:* width/length 1.37 and 1.36; base/apex 1.23 and 1.22. *Elytra:* width elytra/prothorax 1.41 and 1.43. *Length* 10–11 mm; *width* 3.9–4.1 mm.

Holotype, ♂ (BISHOP 8254), Koror, Palau Is., May 5, 1953, Beardsley, M-5333. Paratypes: 5 (BISHOP, MCZ), same data as type except dated Apr. 11, Jun. 15, 20, Jul. 2; some of these specimens labeled "at light"; 1 (BISHOP), Koror I., Dec. 1–15, 1964, "light trap," Bianchi; 1 (FM), E. coast Peleliu I., Aug. 1, 1945, Dybas. The proportions given are of the ♂ holotype and a ♀ paratype with the same data except dated Jul. 2.

DISTRIBUTION: W. Caroline Is. (Palau).

*Chlaenius tetragonoderus* Chaudoir has been known previously from Burma, Sumatra, Java, Borneo, Celebes, Timor, and the Philippines, with subspecies *batjanicus* Louwerens (1956, Treubia **23**:234) on the Moluccas. Related species with similar, very short, transverse mandibles include *maculiger* Castelnau of New Guinea, New Britain, and Australia; an undescribed species from the Solomons; and a very distinct new species from the Marianas (below). The members of the group that I have collected (*tetragonoderus* on Luzon, *maculiger* on New Guinea) live on the ground in rain forest, *not* in specially wet places. This group has apparently differentiated primarily in the Malay Archipelago and dispersed into Micronesia via the Philippines.

I have not seen *C. t. batjanicus* Louwerens, of the Moluccas, but it is described as duller than typical *tetragonoderus*, while *palauensis* is more shining.

**29. Chlaenius marianensis** Darlington, n. sp. (fig. 5*e*)

Form as in fig. 5*e*; black, appendages dark reddish brown; shining; irregularly in part

coarsely punctate above, with reticulate microsculpture faint between punctures on front and pronotum, light, irregular, in part nearly isodiametric on elytra. *Head:* 0.69 and 0.70 width of prothorax; mandibles short, subtransverse; front closely punctate with mixed moderately coarse and fine punctures. *Prothorax:* subquadrate, more narrowed in front than behind; width/length 1.39 and 1.34; base/apex 1.33 and 1.29; side margins very narrow, each with seta at basal angle; disc with impressed middle line and slight sublinear baso-lateral impressions, surface of disc coarsely slightly irregularly punctate. *Elytra:* width elytra/prothorax 1.34 and 1.37; striae impressed, slightly punctulate; intervals flat or slightly convex, coarsely punctate, punctation of inner intervals anteriorly especially coarse and irregular with only a single irregular line of punctures in places on anterior half of each of first 4 intervals. *Inner wings:* fully developed. *Lower surface* extensively but irregularly punctate. *Secondary sexual characters:* ♂ unknown; ♀ with 2 setae on each side of the last ventral segment. *Length ca* 10 mm; *width ca.* 4 mm.

Holotype, ♀ (Bishop 8255), Agiguan I., S. Mariana Is., Aug. 4, 1954 (at light), Davis. Paratypes: 1 ♀ (MCZ), S. Point, Agiguan I., Mariana Is.; 1 ♀ (Bishop), Garapan (Saipan), Aug. 15, no further data. The proportions given are of the holotype and the paratype from Agiguan.

DISTRIBUTION: S. Mariana Is. (Agiguan, Saipan).

Although probably derived from *tetragonoderus* stock (see preceding species), this new species is very distinct and presumably endemic to the Marianas. Its distinguishing characters are given in the preceding key to species.

## Tribe HARPALINI

### Genus **Gnathaphanus** Macleay

*Gnathaphanus* Macleay, 1825, Annulosa Javanica **1:**20 (type species: *G. vulneripennis* Macleay, of Java). —Darlington, 1968, Carabid Beetles of New Guinea, Part 3:41.

*Iwosiopelus* Nakane and Ishida, 1959, Kontyû **27:**137 (type species: *I. masudai* Nakane and Ishida = *Gnathaphanus licinoides* Hope) (new synonymy).

This genus is most diverse in Australia but includes several common species which are widely distributed especially in open country (grassland, etc.) in the Indo-Australian area and islands of the western Pacific.

### Key to Micronesian Species of Gnathaphanus

1. Elytra with intervals 3, 5, and usually 7 (at least posteriorly) with dorsal punctures conspicuously enlarged and impressed; color black, legs black ............... **30. licinoides**
   Elytra with dorsal punctures only on interval 3 and apex of interval 5, these punctures not conspicuously enlarged; color brownish black, tibiae and tarsi paler brown ........................................................................................ **31. picipes**

### 30. **Gnathaphanus licinoides** Hope (fig. 5*f*)

*Gnathaphanus licinoides* Hope, 1842, Ann. Mag. Nat. Hist. **9:**427 (type: Pt.

Essington, N. Australia; in HOPE). —Darlington, 1968, Carabid Beetles of New Guinea, Part 3:41.

*Iwosiopelus masudai* Nakane and Ishida, 1959, Kontyû **27**:137, fig. (Iwo Jima; type in collection of T. Nakane) (new synonymy).

Black; elytra with series of conspicuous foveae; length *ca.* 10.5 mm.

DISTRIBUTION: N. Australia, New Guinea, Moluccas, New Britain, Solomons, New Hebrides, New Caledonia, Volcano Is., N. Mariana Is., S. Mariana Is., W. Caroline Is. (Palau, Yap).

VOLCANO IS. Iwo Jima (type of *I. masudai*).

N. MARIANA IS. PAGAN: Soñgsoñg, Apr. 1940, Yasumatsu and Yoshimura.

S. MARIANA IS. SAIPAN: As Mahetog area, Nov. 1944, Edgar.

PALAU. KOROR: Oct. 1963 (coconut log), Dec. 1964 (light trap), Bianchi; Aug. 1952, Feb. 1953 (at light), Apr. 1954, Beardsley, M-5332. BABELTHUAP: Oller, May 1953, Beardsley, M-5332; Ngarumisukan-Kaishar, Aug. 1939, Esaki.

YAP. YAP: Tomil-Maki, Sep. 1939, Esaki.

The distribution of this species suggests rather recent dispersal (by man?) northward across western Micronesia.

**31. Gnathaphanus picipes** (Macleay)

*Harpalus picipes* Macleay, 1864, Ent. Soc. New South Wales, Trans. **1**:117.

*Gnathaphanus picipes* auct. including Darlington, 1968, Carabid Beetles of New Guinea, Part 3:42.

*Harpalus*-like (but with ♂ front tarsi with densely pubescent soles, not 2-seriately squamulose); brownish black, appendages (except femora) paler brown; 3rd interval of elytron with row of distinct but not enlarged dorsal punctures; length *ca.* 9–10 mm.

DISTRIBUTION: N. Australia, S. New Guinea, S. Mariana Is.

S. MARIANA IS. SAIPAN: Nov. 1944, Edgar; Dec. Dybas, Lot 247; N. end, Dec. 1944, Dybas; As Mahetog area, Nov. 1944, Edgar; same Apr., Jul. 1945 (at light), Dybas. TINIAN: central section, Oct. 1945, Dybas.

Until now, this species has been known only from northern Australia and southern New Guinea (vicinity of Port Moresby). Its appearance on the Marianas in 1944 and 1945 suggests introduction by military traffic. The number of specimens obtained (15 on Saipan, although only 1 on Tinian) implies that it is established on the islands.

## Genus **Harpaloxenus** Schauberger

*Harpaloxenus* Schauberger, 1933, Ent. Anzeiger **13**:154 (type species: *H. javanus* Schauberger). —Darlington, 1968, Carabid Beetles of New Guinea, Part 3:58.

*Harpalus*- or more properly *Trichotichnus*-like; elytron with 1 *minute* dorsal puncture on 3rd interval; front tibiae wider than in *Trichotichnus*, with apex at least 1/4 as wide as tibial length (by measurement).

This genus, which is presumably a derivative of *Trichotichnus*, is represented on Java, Celebes, Philippines, Moluccas, New Guinea, Solomons, New Hebrides, and Palau Is.

**32. Harpaloxenus rasilis** Darlington, n. sp. (fig. 5*g*)

Form as in fig. 5*g*; black, side margins of prothorax and of elytra brownish, legs pale; shining; reticulate microsculpture faint on front and pronotum, more distinct (but still faint) and strongly transverse on elytra. *Head:* 0.82 width of prothorax; front with 2 strong punctiform impressions anteriorly. *Prothorax:* width/length 1.47; base/apex 1.19; sides narrowly margined, each with seta less than 1/4 length from apex; base not margined, apex with margin widely interrupted at middle; disc with moderately impressed middle line and weaker transverse impressions and sublinear but weak and poorly defined baso-lateral impressions; whole surface of disc including baso-lateral areas impunctate. *Elytra:* not specially narrowed to base; width elytra/prothorax 1.32; striae entire, impressed, not punctulate; intervals slightly convex, 3rd with minute dorsal puncture on inner edge behind middle, 9th with irregular row of coarse punctures in part widely spaced, but 8th and 9th intervals only vaguely punctate otherwise. *Inner wings:* broken but evidently fully developed. *Lower surface* impunctate or nearly so, without pubescence or nearly so (lower surface of the single specimen in part obscured even after cleaning). *Legs:* front tibiae with apex 1/4 as wide as tibial length; hind tarsi slender. *Secondary sexual characters:* ♂ front and middle tarsi 2-seriately squamulose; ♂ last ventral segment sinuate each side of apex, with 2 setae each side; ♀ unknown. *Length* 10.0 mm; *width* 3.9 mm.

Holotype, ♂ (Bishop 8256), Palau Is., Koror I., Nov. 13, 1963 (light trap), Bianchi.

DISTRIBUTION: Caroline Is. (Palau).

So far as I can determine, this new *Harpaloxenus* differs from all of the few previously known species of the genus (including *celebensis* Schauberger, which is widely distributed in the Malay Archipelago) in having the pronotum entirely impunctate. It is surely different from the 5 New Guinean species, all of which I know, and it does not run to any other known species in Schauberger's key (see reference under genus). I think, therefore, that it is probably an endemic species perhaps confined to the Palau Is., although more material is needed to show all its characters and distribution.

## Genus **Selenophorus** Dejean

*Selenophorus* Dejean, 1829, Species Général Coléop. **4:**80. (type species: *Carabus palliatus* Fabricius, of N. America). —Casey, 1914, Memoirs **5:**134,144 (see for type species). —Csiki, 1932, Junk-Schenkling Coleop. Cat., Carabidae, Harpalinae **6:**1195.

This genus is widely distributed in N., Central, and S. America and the

W. Indies. One of the many American species has been found on several remote Pacific islands and is now recorded from Guam.

**33. Selenophorus pyritosus** Dejean (fig. 6*a*)

*Selenophorus pyritosus* Dejean, 1829, Species Général Coléop. **4**:84 (Cuba; type in Oberthür, PARIS). —Britton, 1938, B.P. Bishop Mus., Occasional Papers **14**:107.

Stout *Harpalus*-like; reddish black with aeneous luster, legs pale; elytra with several rows of small punctures especially on striae 2, 5, and 7; length *ca.* 9 mm.

DISTRIBUTION: Mexico and Central America S. to Panama, Cuba; Tuamotus, Tahiti, Raiatea, S. Mariana Is.

S. MARIANA IS. GUAM: 1 specimen, in BISHOP, Mar. 1924 (ex house), Hornbostel.

*Selenophorus pyritosus* is evidently established and common on Tahiti. Britton records 25 specimens from there, and I have seen an additional series from the island in the US. Its occurrence on Guam greatly extends its known range and suggests that it may have been dispersed by the old Spanish galleon traffic mentioned in the Introduction.

## Genus **Egadroma** Motschulsky

*Egadroma* Motschulsky, 1855, Étude Ent. **4**:43 (type species: *Carabus smaragdulus* Fabricius). —Darlington, 1968, Carabid Beetles of New Guinea, Part 3:69.

Small Harpalini of subtribe Acupalpina (1 seta over each eye, ♂ front tarsi 2-seriately squamulose, etc.); upper surface not pubescent, elytra (in Micronesian species) subiridescent.

DISTRIBUTION: the warmer parts of the Old World. Two common, widely distributed species reach Micronesia. Both occur on the ground in wet places.

### KEY TO MICRONESIAN SPECIES OF EGADROMA

1. Larger (*ca.* 6–7 mm); elytra usually conspicuously pale-spotted......**34. quinquepustulata**
Smaller (*ca.* 5 mm); elytra not or not conspicuously pale-spotted..................**35. smaragdula**

**34. Egadroma quinquepustulata** (Wiedemann)

*Badister* 5 *pustulatus* Wiedemann, 1823, Zool. Magazin **1**(2):58 (Bengal; type in COPENHAGEN).

*Egadroma quinquepustulata* auct. including Darlington, 1968, Carabid Beetles of New Guinea, Part 3:70.

Black or brownish black, elytra subiridescent, lateral margins of pronotum and elytra narrowly testaceous, appendages testaceous, elytra each with posthumeral spot and usually a subapical spot near outer margin and a common subapical sutural spot pale, the subapical

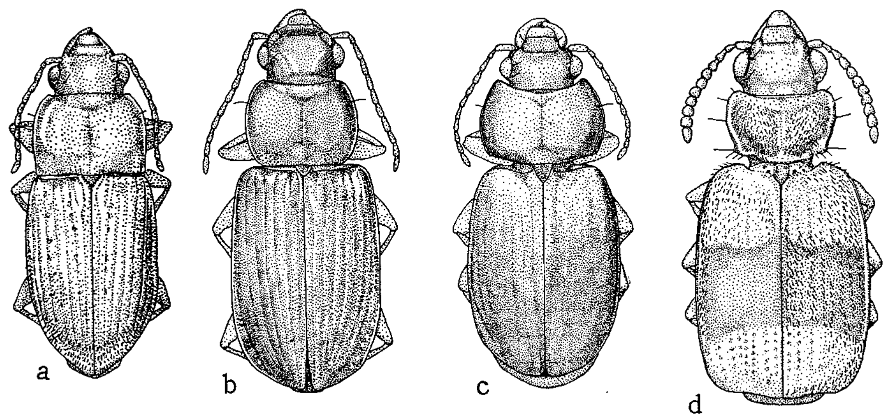


FIGURE 6. **a,** *Selenophorus pyritosus;* **b,** *Egadroma smaragdula;* **c,** *Aephnidius opaculus;* **d,** *Somotrichus elevatus.*

spots varying from absent or nearly so to enlarged and joined so that the whole apex of the elytra is pale (this variation being individual, occurring for example in the series from Chichi Jima); length *ca.* 6–7 mm.

DISTRIBUTION: S. Asia, Japan, Formosa, to New Guinea, N.E. Australia; Bonin Is., W. Caroline Is. (Palau, Yap).

BONIN IS. CHICHI JIMA: Omura, Apr., May, June, 1958 (Camp Beach), Snyder.

PALAU. KOROR: July 1951, Gressitt; Oct., Nov. 1952, Jan. 1953 (at light), Beardsley, M-5331; Dec. 1964 (light trap), Bianchi. BABELTHUAP: Oller, May 1953, Beardsley.

YAP. YAP: Kanif, Dugor, Colonia, and N. Yap, Jul.-Aug. 1950, Goss.

**35. Egadroma smaragdula** (Fabricius) (fig. 6*b*)

*Carabus smaragdulus* Fabricius, 1798, Supplementum Ent. Systematicae, p. 60 ("India orientali"; type in COPENHAGEN).

*Egadroma smaragdula* auct. including Darlington, 1968, Carabid Beetles of New Guinea, Part 3:70.

?*Stenolophus dingo* Andrewes, 1927, Insects of Samoa, Part 4, Fasc. 1:4 (Samoa, Tahiti, etc.).

?*Acupalpus vestigialis* Britton, 1938, B.P. Bishop Mus. Occasional Papers **14** (6):107 (Tahiti).

Like preceding species but smaller, and elytra unmarked or with pale marks weakly developed; length *ca.* 5 mm.

DISTRIBUTION: S.E. Asia to N. Australia, E. to Philippines, Samoa, Tahiti, S. Mariana Is., Caroline Is., Marshall Is., Gilbert Is.

S. MARIANA IS. SAIPAN, ROTA, GUAM; 1937–1948 (often at light), Edgar, Dybas, Hagen, Esaki, Ducoff, Townes, Oakley, Fullaway, Bohart, and Gressitt.

PALAU. BABELTHUAP, KOROR, ANGAUR, PELELIU, 1936–1964 (under chips, surface of ground, often at light), Beardsley, Esaki, Ono, Sabrosky, Matusita, Dybas, Gressitt, McDaniel, Bianchi, and Murakami.

YAP. YAP: Jul.-Aug. 1950, Goss; Gatzapar, Sep. 1939, Esaki; Kanif, Colonia, Dugor, and Gagil Dist., Jul.-Aug. 1950, Goss.

CAROLINE ATOLLS. TOBI (TOKOBEI): Jan. 1938, Murakami. ULITHI: MogMog I., May 1945, Young, some #9; same, Oct. 1952, Krauss; Potangeras I., Aug. 1945, Baker; Fassarai, Sep. 1956, McDaniel, #8. LAMOTREK: Lamotrek I., Sep. 1952, Krauss. IFALUK: Ifaluk I., Aug. 1953 (at light), Bates.

TRUK. PATA: Sabote-Epin; TOL: Olej-Foup; both Apr. 1940, Yasumatsu and Yoshimura.

PONAPE. COLONIA-SOKEHS (KOLONIA-JOKAJI): Jul. 1939, Esaki.

KUSAIE. Malem, 1 m, Apr. 1953, Clarke; Mutunlik, 22 m, Jan., Feb. 1953, Clarke.

MARSHALL IS. ENIWETOK: Engebi I., Jan. 1951 (under dead leaves of *Messerschmidtia* tree, on ground under dry leaves), Oshiro, #113. KWAJALEIN: Kwajalein I., Sep. 1953, Sep. 1956 (light trap), Jul. 1958 (at light), Clagg; same, Feb. 1958, Krauss. JALUIT: Jabor I., Apr., May 1958, Gressitt. MAJURO: Jun., Jul. 1950, La Rivers; Roguron, Apr. 1949, USDA collection, Maehler. ARNO: Ulen I., Bikarei I., Ine I.; Jul., Aug. 1950 ("nite lite sea beach"), La Rivers.

GILBERT IS. MAKIN: Jun. 1944, Enke. TARAWA: Betio I., Aug. 1956, Brown, 5625 B (8); Bairiki I., Dec. 1957, Krauss. KURIA: Nov. 1964 (light trap), Perkins.

The correct name and limits of distribution of this very common species cannot be determined until it and its immediate allies are thoroughly revised, but I am reasonably sure that all the records cited above refer to a single species that is very widely distributed on remote islands in the western and central Pacific. It is one of the two commonest carabids in Micronesia (the other is *Perigona nigriceps*): about 455 specimens (some in capsules) from there have been seen. One reason for its abundance in collections is that it often flies to light. Two specimens labeled "Com Mar Hill Guam 1 Mar. 48 KL Maehler" are labeled also "M-1225." This insect is probably carried by man, perhaps on ships to which it is attracted by lights.

## TRIBE ANAULACINI

### Genus **Aephnidius** Macleay

Aephnidius Macleay, 1825, Annulosa Javanica, p. 23 (type species: *A. adelioides* Macleay, of the Asiatic-Australian area). —Darlington, 1968, Carabid Beetles of New Guinea, Part 3:77.

This genus, the only member of the tribe in Micronesia, is represented there by a single Oriental species easily known (in Micronesia) by its characteristic form and short, semicircular mandibles.

Other species of the genus occur in all principal tropical and some adjacent warm-temperate areas.

The species of this genus, so far as I know them, occur on the ground in leaf litter or debris.

**36. Aephnidius opaculus** (Zimmermann) (fig. 6*c*)

*Masoreus opaculus* Zimmermann, 1834, in Gistl, Faunus **1:**120 (East Indies; type in ZMB).

Form as in fig. 6*c*; depressed; dull black, in part sometimes rufescent; length *ca.* 4.5 mm.

DISTRIBUTION: S.E. Asia including Ceylon, Burma, Andaman Is., Sumatra, Philippines, S. Mariana Is.

S. MARIANA IS. GUAM: 9 specimens, labeled "predators Guam," Jul. 1937, no collector stated.

It is noteworthy that the species of *Aephnidius* found on Guam is *opaculus* rather than the commoner and more widely distributed *A. adelioides* Macleay.

## TRIBE LEBIINI

### Genus **Somotrichus** Seidlitz

*Somotrichus* Seidlitz, 1887, Fauna Baltica, 2nd ed., Gattungen, p. 7 (type species: *Carabus elevatus* Fabricius).

**37. Somotrichus elevatus** (Fabricius) (fig. 6*d*)

*Carabus elevatus* Fabricius 1787, Mantissa Insectorum **1:**198 (tropical America; types in Hunter, GLASGOW, and Fabricius, KIEL.

*Somotrichus elevatus* auct. including Darlington 1968, Carabid Beetles of New Guinea, Part 3:83.

Form as in fig. 6*d*; brown with broad, regular, darker-brown fascia across middle of elytra; pubescent; pronotum with several setae each side; length *ca.* 3.5–4.0 mm.

DISTRIBUTION: supposedly native in Africa; carried by commerce over much of world; in Malay Archipelago found in Java, Celebes, Moluccas;

Palau Is.; (but apparently not recorded from Hawaii—E. C. Zimmerman, personal communication, 1968).

PALAU. PELELIU: 1 specimen, Aug. 1945, Hagen CAS.

### Genus **Holcoderus** Chaudoir

*Holcoderus* Chaudoir, 1869, Soc. Ent. Belgium, Ann. **12:**153 (type species: *H. praemorsus* Chaudoir, of Ceylon). —Darlington, 1968, Carabid Beetles of New Guinea, Part 3:94.

Slender (in Micronesian species) convex Lebiini with elytral apices very strongly sinuate.

DISTRIBUTION: S.E. Asia to Philippines, New Guinea, N. Australia, Palau Is., Caroline Is.

The species of this genus are rarely collected (compared with the commoner *Catascopus*, for example), and I suspect that some of them live in tree tops in rain forest.

**38. Holcoderus decolor** Darlington, n. sp. (fig. 7*a*)

Form as in fig. 7*a*; subcylindric; dark reddish brown, more reddish below, appendages dark reddish brown; shining; reticulate microsculpture absent on front, faint on pronotum, more distinct and weakly transverse on elytra. *Head:* 0.80 and 0.80 width of prothorax; front weakly impressed each side, sparsely punctulate. *Prothorax:* subquadrate; width/length 1.37 and 1.39; base/apex 1.14 and 1.17; side margins moderate and moderately reflexed, each with setae just before basal angle, *ca.* 1/3 from apex, and sometimes at apical angle; base margined, apex not; disc with coarse middle line, weak transverse impressions, small irregularly flattened but scarcely impressed baso-lateral areas; surface of disc faintly wrinkled, sparsely punctulate. *Elytra:* width elytra/prothorax 1.29 and 1.25; striae well impressed, entire, not or slightly punctulate; intervals slightly convex, 3rd 2-punctate, the punctures before middle and within 1/4 of apex. *Inner wings:* fully developed. *Lower surface* sparsely pubescent but not or not much punctate. *Legs:* claws each with several small teeth (as usual in genus). *Secondary sexual characters:* ♂ unknown; ♀ with 2 setae each side last ventral segment. *Length ca.* 2.6 mm.

Holotype, ♀ (US 70710), E. Ngatpang, Babelthuap I., Palau Is., 65 m, Dec. 9, 1952, Gressitt. The proportions given are of the holotype and the specimen from Ruul-Nif, Yap, Sep. 3, 1939, Esaki (BISHOP).

DISTRIBUTION: W. Caroline Is. (Palau, Yap).

As the specific name suggests, this species differs from all otherwise similar members of the genus (that is, from all other *slender* species of *Holcoderus* including *elongatus* Saunders of New Guinea) in being plain dark brown in color, not metallic. The single specimen from Yap is a female, and it differs from the female type in details that might justify recognition of a separate species if the differences were constant. However, the New Guinean species of this genus (*H. elongatus* Saunders) is extraordinarily variable in structural details as well as in color (see Darlington, reference given under genus), and considerable variation should be allowed for in its relatives.

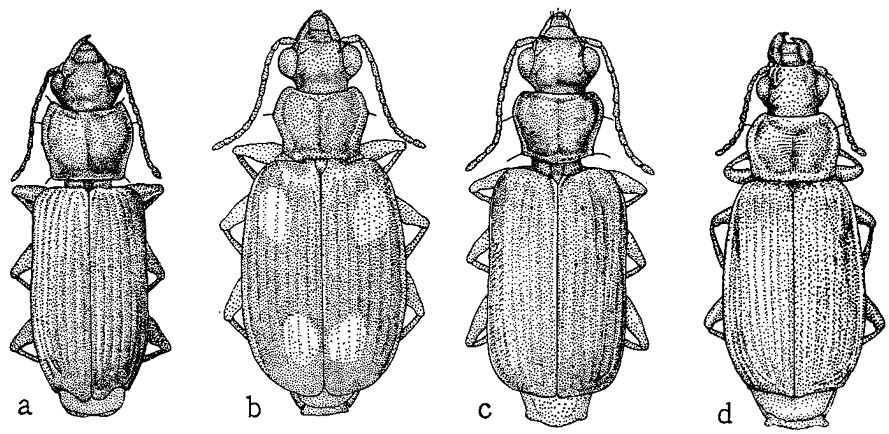



FIGURE 7. **a,** *Holcoderus decolor;* **b,** *Mochtherus tetraspilotus;* **c,** *Celaenephes parallelus;* **d,** *Plochionus pallens.*

Genus **Mochtherus** Schmidt-Goebel

*Mochtherus* Schmidt-Goebel, 1846, Faunula Coleop. Birmaniae, p. 76 (type species: *M. angulatus* Schmidt-Goebel = *tetraspilotus* Macleay). —Darlington, 1968, Carabid Beetles of New Guinea, Part 3:122.

Medium-sized, broad, depressed Lebiini; dull; surface of pronotum with short pubescence; elytra (in Micronesian species) 4-maculate.

DISTRIBUTION: S.E. Asia and Japan to the Philippines, New Guinea, Samoa, Christmas Is., S. Mariana Is.

**39. Mochtherus tetraspilotus** (Macleay) (fig. 7*b*)

*Dromius tetraspilotus* Macleay, 1825, Annulosa Javanica, p. 25 (Java; type in BM).

*Mochtherus tetraspilotus* Andrewes, 1927, Insects of Samoa, Part 4, Fasc. 1:12.

*Dolichoctis* (*Mochtherus*) *tetraspilotus* Habu, 1967, Fauna Japonica, Carabidae, Truncatipennes Group, p. 104.

See description under genus; dull reddish black, each elytron with posthumeral and subapical red spot; length *ca.* 7 mm.

DISTRIBUTION: S.E. Asia including Ceylon and Formosa to Sumatra, Java, Borneo, Buru, Philippines, Christmas Is., Samoa, S. Mariana Is.

S. MARIANA IS. TINIAN: 29 specimens, Marpo Valley, Oct. 1945, Dybas; 19 specimens, Oct. 1945, Hagen, #292. GUAM: 1 specimen, Talofofo to Umatac, Jan. 1949, Potts.

According to Andrewes, this is one of the commonest Carabidae of S.E. Asia, where it is frequently found under bark. It does not reach New Guinea, where its place is taken by *M. obscurus* (Sloane), which is also common, on

tree trunks and logs in rain forest. That the species on Samoa is the Asiatic rather than the New Guinean one suggests introduction by man, and the appearance of the species in numbers in the Marianas in 1945 suggests introduction during the war, perhaps by Japanese commerce.

### Genus **Celaenephes** Schmidt-Goebel

*Celaenephes* Schmidt-Goebel, 1846, Faunula Coleop. Birmaniae, p. 77 (type species: *C. parallelus* Schmidt-Goebel). —Darlington, 1968, Carabid Beetles of New Guinea, Part 3:135.

A monotypic genus of Lebiini with form similar to that of a slender *Agonum* but with elytral apices broadly rounded-subtruncate.

DISTRIBUTION: same as that of the single species.

**40. Celaenephes parallelus** Schmidt-Goebel (fig. 7*c*)

*Celaenephes parallelus* Schmidt-Goebel, 1846, Faunula Coleop. Birmaniae, p. 77 (Burma; type in PRAGUE). —Andrewes, 1927, Insects of Samoa, Part 4, Fasc. 1:11. —Darlington, 1968, Carabid Beetles of New Guinea, Part 3:135. —Habu, 1967, Fauna Japonica, Carabidae, Truncatipennes Group, p. 250.

Form distinctive; color plain brownish black; length *ca.* 6.0–7.7 mm.

DISTRIBUTION: S. Asia to New Guinea, N. Australia, Philippines, New Britain, New Ireland, Solomons, Fiji, Samoa, New Caledonia, W. Caroline Is. (Palau, Yap).

PALAU. Apr. 1936, Ono. BABELTHUAP: Ngaremeskang, 30 m, Dec. 1952, Gressitt.

YAP. YAP: Ruul-Tomil, Sep. 1939, Esaki.

The wide distribution of this common carabid suggests that it may somehow be carried by man. It is arboreal and is often collected by beating foliage, but it may occur also in thatching material.

### Genus **Plochionus** Latreille and Dejean

*Plochionus* Latreille and Dejean, 1824, Hist. Nat. et Iconogr. Coleop. d'Europe **1**:150 (type species: *Carabus pallens* Fabricius).

Rather large, heavily built, plain brown lebiines, with ♂ middle tibiae bent in toward apex.

DISTRIBUTION: The warmer part of the Americas, with the following species now irregularly cosmopolitan. A supposed endemic species on New Caledonia needs confirmation.

**41. Plochionus pallens** (Fabricius) (fig. 7*d*)

*Carabus pallens* Fabricius, 1775, Systema Ent., p. 244 (Europe; type presumed

lost). —Britton, 1948, Hawaiian Ent. Soc., Proc. **13:**237. —Darlington, 1968, Carabid Beetles of New Guinea, Part 3:138.

Form as in fig. 7*d*; brown, not marked; not pubescent; ♂ middle tibiae arcuate, broadly emarginate below near middle, with a fine longitudinal costa on lower edge distad to the emargination; length *ca.* 7.0–9.5 mm.

DISTRIBUTION: Most warmer parts of the world; in the Asiatic-Pacific area, S.E. Asia, Sumatra, Java, New Hebrides, Fiji, Hawaii, S. Mariana Is.

S. MARIANA IS. SAIPAN: 22 specimens, Aug. 1941, Asgonno, Oct. 1941, May 1942, Matusita.

I do not know what details of life history or behavior of this predaceous insect make it liable to transport by man, but there is no doubt that it is commonly carried by commerce. A specimen from Rabaul, New Britain, is labeled "in dried garlic from Hong Kong," and one from Namatanai, New Ireland, is labeled "in bulk copra" (both specimens in collection of Dept. Agriculture, Pt. Moresby). Perhaps the beetle preys on larvae of other insects in stored products, as *Anchista binotata* (#43) may do.

### Genus **Endynomena** Chaudoir

*Endynomena* Chaudoir, 1872, Soc. Ent. Belg., Ann. **15:**186 (type species: *Plochionus pradieri* Fairmaire). —Darlington, 1968, Carabid Beetles of New Guinea, Part 3:140.

Rather large, plain brown lebiines, distinguished from the preceding (*Plochionus*) by surface plainly short-pubescent.

DISTRIBUTION: S.E. Asia, including Japan, with the following species widely spread over the islands of the Pacific.

**42. Endynomena pradieri** (Fairmaire) (fig. 8*a*)

*Plochionus pradieri* Fairmaire, 1849, Revue et Magazin Zool. **1:**34, 281 (Marquesas Is; type in Oberthür, PARIS).

*Endynomena pradieri* auct. including Andrewes, 1927, B.P. Bishop Mus. Occasional Papers **14:**109. —Swezey, 1942, B.P. Bishop Mus. Bull. **172:** 150. —Britton, 1948, Hawaiian Ent. Soc., Proc. **13:**236. —Darlington, 1968, Carabid Beetles of New Guinea, Part 3:140.

Form as in fig. 8*a*; plain brown, upper surface short-pubescent; length *ca.* 8 mm.

DISTRIBUTION: S.E. Asia, Sumatra, Philippines, New Guinea, Fiji, Samoa, Tonga, New Caledonia, Tahiti, Hawaii, N. Mariana Is., S. Mariana Is., Caroline Is. (Ulithi Atoll, Kusaie).

N. MARIANA IS. ANATAHAN, Aug. 1951, Bohart.

S. MARIANA IS. GUAM: Stuntz, Jun. 1945; Fullaway, #1368, 1911.

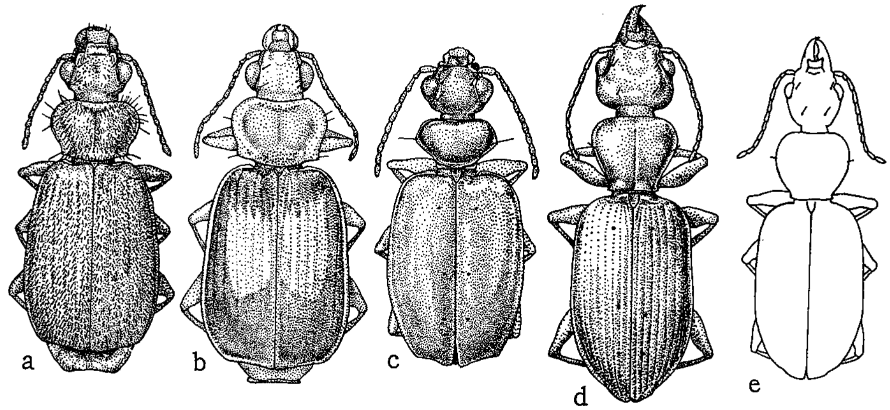



FIGURE 8. **a,** *Endynomena pradieri;* **b,** *Anchista binotata;* **c,** *Pentagonica trukensis;* **d,** *Hexagonia palauensis,* ♂; **e,** same, ♀.

Machanao, Jun. 1936, Usinger; Pt. Oca, May 1945 (at lights), Bohart and Gressitt; Ritidian Pt., May 1945, Dybas, Lot 2073; Pati Point, Jun. 1945, Dybas, Lot 2210; Mt. Alifan, Apr. 1946, Krauss.

CAROLINE ATOLLS. ULITHI: Potangeras I., Aug. 1955, Baker.

KUSAIE. Lelo, Nov., Dec. 1937, Esaki; Mutunlik, 22 m, Mar. 1953 (dead sea shells), Clarke.

This species is comparable in size and form to the preceding and following species (*Plochionus pallens* and *Anchista binotata*). They may all have similar habits, and are all apparently carried by man.

### Genus **Anchista** Nietner

*Anchista* Nietner, 1856, J. Asiatic Soc. Bengal **6:**523 (type species: *Lebia brunnea* Wiedemann, of India and Ceylon). —Darlington, 1968, Carabid Beetles of New Guinea, Part 3:139.

This is a genus of few species confined to S.E. Asia, including Ceylon and Japan, except that one species (below) is widely distributed in the Malay Archipelago and islands of the western Pacific.

**43. Anchista binotata** (Dejean) (fig. 8*b*)

*Plochionus Binotatus* Dejean, 1825, Species Général Coléop. **1:**252 (Mariana Is.; type in Oberthür, PARIS).

*Anchista binotata* auct. including Darlington, 1968, Carabid Beetles of New Guinea, Part 3:140. —Habu, 1967, Fauna Japonica, Carabidae, Truncatipennes Group, p. 138, figs.

A rather large lebiine, reddish brown with a large testaceous plagia centered before the middle on each elytron; not pubescent; length *ca.* 8–9 mm.

DISTRIBUTION: S.E. Asia (India to Japan), Andaman Is., Sumatra, Java, Borneo, Philippines, Buru, New Guinea, Mariana Is.

MARIANA IS. MARIANA IS. IN GENERAL: Dejean's type(s). SAIPAN: Asgonno, 9 specimens, May 1942, Matusita. GUAM: Sep. 1937 (in feed bin), Oakley, #37–26118.

This insect too is probably carried by man. Oakley's record suggests that it may be a predator of insects that feed on stored products.

## TRIBE PENTAGONICINI

### Genus **Pentagonica** Schmidt-Goebel

*Pentagonica* Schmidt-Goebel, 1846, Faunula Coleop. Birmaniae, p. 47 (type species: *P. ruficollis* Schmidt-Goebel of Burma etc.). —Darlington, 1968, Carabid Beetles of New Guinea, Part 3:192.

The species of this genus are (in Micronesia) unique in form, with the sides of the prothorax strongly angulate.

The genus is represented in all warmer parts of the world. Many of the species, including probably all the Micronesian ones, are arboreal, occurring especially in tangled masses of vines and brush near the ground. However, some species of the genus elsewhere are ground-living.

#### KEY TO MICRONESIAN SPECIES OF PENTAGONICA

1. Prothorax strongly pedunculate; bicolored, dark with red prothorax; small, length 3–4 mm .......... **44. pallipes**
   Prothorax less pedunculate; usually not bicolored, dark (but sometimes with pale margins); size usually larger .......... 2

2(1). Prothorax and elytra with conspicuous pale-translucent margins; prothorax narrower, width/length *ca.* 1.65 or less; size larger, length 5.0–5.5 mm...... **45. erichsoni**
   Prothorax and elytra less conspicuously pale-margined; prothorax relatively wider; smaller, length 3.5–4.5 mm .......... 3

3(2). Dorsal surface microreticulate; elytra striate .......... **46. blanda**
   Dorsal surface not microreticulate; elytra not striate .......... **47. trukensis**

### 44. **Pentagonica pallipes** (Nietner)

*Elliotia pallipes* Nietner, 1856, Asiatic Soc. Bengal, Journ. **25**:525 (probably from Ceylon; type should be in Stettin, WARSAW). —Darlington, 1968, Carabid Beetles of New Guinea, Part 3:192.

Form of genus but prothorax pedunculate (constricted at base with sides subparallel for *ca.* 1/7 of length); prothorax red, head and elytra dark (latter with pale-translucent margins); elytral striae punctate; length 3–4 mm.

DISTRIBUTION: Ceylon, Malay Peninsula, to Philippines, New Guinea, New Britain, N.E. Australia, W. Caroline Is. (Palau, Yap).

PALAU. KOROR: Sep., Dec. 1952 (at light), Beardsley, #M-5330; S.W.

Koror, 25 m, Dec. 1952 (light trap), Gressitt. ANGAUR: Feb. 1948, Dybas.

YAP. YAP: Kolonia, Jul. 1950 (at light), Goss.

### 45. **Pentagonica erichsoni** Schmidt-Goebel

*Pentagonica erichsoni* Schmidt-Goebel, 1848, Faunula Coleop. Birmaniae, p. 48 (Burma; in PRAGUE). —Darlington, 1968, Carabid Beetles of New Guinea, Part 3:194.

Large, relatively narrow; dark, prothorax and elytra with pale-translucent margins; length *ca.* 5–6 mm.

DISTRIBUTION: S.E. Asia including Ceylon, to New Guinea, N.E. Australia, S. Mariana Is., W. Caroline Is. (Palau, Yap).

S. MARIANA IS. GUAM: Pt. Ritidian, Aug. 1945, Bohart and Gressitt.

PALAU. KOROR: Jan., Apr., May 1953 (most at light), Beardsley (1, May, #M-5329); S.W. Koror, 25 m, Dec. 1952 (light trap), Gressitt.

YAP. YAP: Kanif and Dugor, Jul.-Aug. 1950, Goss.

### 46. **Pentagonica blanda** Andrewes

*Pentagonica blanda* Andrewes, 1929, Tijdschrift Ent. **72**:315,339 (Sumatra; type in BM). —Darlington, 1968, Carabid Beetles of New Guinea, Part 3:193.

Form average (broad); usually uniformly dark (with margins of prothorax and elytra slightly but not conspicuously paler) but prothorax dull reddish in some specimens; upper surface with distinct reticulate microsculpture; length *ca.* 3.5–4.5 mm.

DISTRIBUTION: Probably widely distributed, from S.E. Asia to N.E. Australia, but details confused by doubtful identifications; New Guinea, Philippines, S. Mariana Is., Caroline Is. (Palau, Ponape, Kusaie).

S. MARIANA IS. SAIPAN: Dec. 1944, Smith, lot 45–7197/836.

PALAU. KOROR: Dec. 1952, May 1953 (at light), Beardsley, #M-5329; Apr. 1957, Sabrosky; S.W. Koror, 25 m, Dec. 1952 (light trap), Gressitt.

PONAPE. Metalanim plantation, Dec. 1948, Langford.

KUSAIE. Mutunlik, 22 m, Feb. 1953 (some at light); Mt. Matante, 580 m, Jun. 1953 (at light); Malem, 30 m, Mar. 1953 (at light); Wakap, 390 m, Apr. 1953 (at light); Hill 541, 110 m, Mar. 1953 (at light); Lelu I., 100 m, Feb. 1953 (at light); all by Clarke.

See Darlington, 1968, for discussion of the taxonomy, variation, and distribution of this species or group of species of *Pentagonica*.

### 47. **Pentagonica trukensis** Darlington, n. sp. (fig. 8*c*)

Form as in fig. 8*c*, about as in *P. blanda;* black or brownish black, margins of prothorax and elytra scarcely paler, antennae and legs brownish testaceous; shining, reticulate microsculpture indistinct. *Head:* 0.86 and 0.86 width of prothorax. *Prothorax:* width/length 1.72

and 1.69; base/apex not accurately determinable. *Elytra:* width elytra/prothorax 1.62 and 1.69; striae obliterated. *Length ca.* 4.0 mm; *width* 1.7–1.9 mm.

Holotype, ♂ (US 70711), Civ. Ad. Area, Moen I., Truk, E. Caroline Is., Apr. 27, 1949, Potts. Paratypes: 2 (Bishop, MCZ), same data as holotype except dated Apr. 21, 24; 1, (MCZ), Truk, Moen I., Mt. Teroken, Dec. 27, 1952 (light trap), Gressitt; 1 (Bishop), Truk, Tol I., Mt. Uniböt, 300 m, Feb. 4, 1953, Gressitt. The proportions given are of the ♂ holotype and a ♀ with same data except dated Apr. 21.

DISTRIBUTION: Caroline Is. (Truk).

The preceding brief description includes all the characters that now seem worth giving in this difficult genus, in which specific distinctions are based mainly on form, color, and sculpture.

*P. trukensis* is perhaps a local derivative of the more widely distributed *blanda* (above).

## Tribe HEXAGONIINI

### Genus **Hexagonia** Kirby

*Hexagonia* Kirby, 1825, Linnean Soc. London, Trans. **14:**563 (type species: *H. terminata* Kirby, of S.E. Asia). —Darlington, 1968, Carabid Beetles of New Guinea, Part 3:202.

This is a genus of subparallel, flattened Carabidae specialized to live under the leaf sheaths of plants.

The genus is widely distributed in the warmer regions of the Old World and includes a small variety of species in S. Asia to the Philippines, with 1 species group represented in New Guinea and N.E. Australia and 1 species endemic on the Palau Is.

**48. Hexagonia palauensis** Darlington, n. sp. (figs. 8*d,e*)

Form as in fig. 8*e*; black or dark reddish brown, legs dark, antennae slightly more reddish, palpi reddish testaceous; shining; reticulate microsculpture absent or faint. *Head:* 0.92 and 0.85 width of prothorax; head dimorphic, in ♂ larger and with much more prominent genae than in ♀; front flat, weakly impressed each side anteriorly. *Prothorax:* cordate; width/length 1.20 and 1.13; base/head 0.62 and 0.69; side margins narrow, each with seta before middle; disc flattened, with middle line impressed, transverse impressions vague or absent, and part of surface slightly transversely strigulose. *Elytra:* subquadrate, with prominent but broadly rounded humeri; width elytra/prothorax 1.42 and 1.54; striae entire, impressed, not distinctly punctulate; intervals slightly convex, 3rd 3-punctate (on both elytra of all specimens). *Inner wings:* fully developed. *Lower surface and legs* without notable special characters. *Secondary sexual characters:* ♂ (fig. 8*d*) and ♀ (fig. 8*e*) differing in form; ♂ tarsi apparently not modified; 2 setae each side apex last ventral segment in both sexes. *Length ca.* 11.3 (♂)—9.5 (♀); width 3.6 (♂)—3.2 (♀).

Holotype, ♂ (US 70712), Ngaremeskang, Babelthuap, Palau Is., 30 m, Dec. 21, 1952, Gressitt. Paratypes: 5 ♀♀ (Bishop, MCZ) with same data as holotype except 1 dated Dec. 20. The proportions given are of the ♂ holotype and a ♀ paratype with same data.

DISTRIBUTION: W. Caroline Is. Palau.

PALAU. Babelthuap: the types. Peleliu I.: 1 ♂, Akarokuru-Ashiasu-Garudokoro, Aug. 11, 1939, Esaki.

This species appears to be the eastern representative of a geographic series which includes also *Hexagonia bowringi* Schaum (Malay Peninsula and Java) and *castanea* Jedlicka (Philippines). These species are all very similar in form, color, and obvious characters, but *palauensis* differs from *bowringi* in having the elytral striae not plainly punctate, and from *castanea* in having only three punctures on the third elytral interval.

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